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I.

THE PLACE OF SCHOOLS OF TECHNOLOGY IN AMERICAN EDUCATION.

Among the vast changes in the spirit and life of our country, in the arts, the industries, the ideas, the aspirations of the American people, which were brought about by, or which coincided with, the great struggle from 1861–65, none is more remarkable than the rapid development of schools of applied science and technology. It is not my purpose to name even the most important of these, or to attempt to divide among them the honor of what they have, as a whole, achieved. I shall confine myself to accounting, as far as I may, for the rapidity with which these schools have spread over the land, and to estimating their place in the educational system of the future.

The nearest and easiest thing to say regarding the growth of scientific and technical schools, since the fortunate conclusion of the civil war, is that the industrial development of the country had reached the point where it had become necessary that the enterprises into which our labor and capital were to be put should be organized and directed with much more of skill and scientific knowledge than had been applied to our earlier efforts at manufactures and transportation; and so, in the fullness of time, scientific and technical schools came. In this view there is much of truth. The vaster enterprises of these later days, the ever increasing possibilities of modern commerce and industry, the intensifying severity of competition due to quickened communication, fast mails, cheap

freights, and ocean cables, had indeed created an urgent want for greater technical skill and more highly trained intelligence. The old wasteful ways of dealing with materials, the rule-of-thumb methods of construction, the haphazard administration characteristic of our earlier industrial efforts, could not have been continued without greatly retarding the national development and without irreparable loss in the result. But not, at the time spoken of, had this want become one of which our people were generally conscious; much less had it created a demand for such institutions which would of itself have sufficed to bring them into existence. The establishment of scientific and technical schools in the United States was to constitute a striking instance of the principle that, in some things, supply must create demand.

Economists and people generally are so much accustomed to think of the more usual condition, in which demand creates supply, that they often forget, indeed, to many it never occurs, that there is another large class of cases, and these by far the most important of all, in which the opposite rule obtains. In the lower ranges of life, in matters of clothing, food, and shelter, and indeed in holding on to whatever advances civilization has once fairly and fully made, whether in material or in higher things, the conscious wants of humanity will, in all ordinary cases, suffice to secure the due supply, without any organized public or private effort other than that originating in personal interest. But in all things high and fine, and generally also in every advance which material civilization is to make, there must be a better intelligence than that of the market, which shall apprehend, not what the people want, but what they ought to want. There must be disinterested efforts, on the part of the natural leaders of society, which shall secure, at whatever sacrifice, such a demonstration of the merits and advantages of the yet unknown thing, such a supply of the new good, as shall create the demand for it. It will not be until that want has been fairly and fully wrought into the public consciousness that the supply may thereafter be left to take care of itself.

The American schools of technology illustrate, in an eminent degree, the law of human progress which I have stated. These schools did not come into existence in obedience to a demand for them. They were created through the foresight, the unselfish devotion, the strenuous endeavor, of a few rich men, and of many very poor men, known as professors of mathematics, chemistry, physics, and geology. At the time they came into existence there was a smaller demand for technically trained men than there is to-day, when for twenty-five years these schools have been pouring out their hundreds of graduates annually. That demand has been created by first furnishing the supply; by showing what young men properly educated and highly trained can do in organizing and directing the forces of American industry.

That these schools—in spite of the fact that they had everything to do at once and little to do it with; in spite of the fact that they had no traditions to govern them, and had, indeed, the whole philosophy of their subject to evoke, *a priori;* in spite of general public indifference and even of much contempt—have done their work exceedingly well, even from the first, is fairly implied in the foregoing statement. It is truly remarkable that, with so little to go by and so much to do, all at once, out of such scanty means, there should have been so little waste of effort, so little done injudiciously, so few steps taken that needed to be retraced.

Credit should also be given to the Congress of the United States for the act which was passed July 2, 1862, under the enlightened leadership of the Hon. Justin S. Morrill, of Vermont, making generous provision for the establishment, in the several States, of colleges of agriculture and the mechanic arts. Most of this provision was, it is true, devoted to the creation of agricultural schools, regarding which the scope of this paper does not require me to speak; and, indeed, regarding which I should scarcely presume to express an opinion; yet the part which was assigned to the promotion of the mechanic arts proved to be a most valuable and timely re-enforcement of the American system of technological schools.

But no one who thoroughly believes in the mission of schools of this class can be content merely to assert that the full time had come in the economic evolution of the nation when such schools were imperatively needed for the promotion of our industries, and that the institutions thus called into being have done this, their primary work, with triumphant success. I go far beyond this, and assert for these schools that they have come to form a most important part of the proper educational system of the country, and that they are to-day doing a work in the intellectual development of our people which is not surpassed, if indeed it be equaled, by that of the classical colleges. No statement less broad and strong than this would begin to do justice to the view I take of what these schools are now doing, and are in an increasing measure to do for the manhood and citizenship of the country. I believe that in the schools of applied science and technology, as they are carried on to-day in the United States,—involving the thorough and most scholarly study of principles directed immediately upon useful arts, and rising, in their higher grades, into original investigation and research,—is to be found almost the perfection of education for young men. Too long have we submitted to be considered as furnishing something which is, indeed, more immediately and practically useful than a so-called liberal education, but which is, after all, less noble and fine. Too long have our schools of applied science and technology been popularly regarded as affording an inferior substitute for classical colleges to those who could not afford to go to college, then take a course in a medical or law school, and then wait for professional practice. Too long have the graduates of such schools been spoken of as though they had acquired the arts of livelihood at some sacrifice of mental development, intellectual culture, and grace of life. For me, if I did not believe that the graduates of the institution over which I have the honor to preside were better educated men, in all which the term educated man implies, than the average graduate of the ordinary college, I would not consent to hold my position for another day. It is true that

something of form and style may be sacrificed in the earnest, direct, and laborious endeavors of the student of science; but that all the essentials of intellect and character are less fully or less happily achieved through such a course of study, let no man, connected with such an institution, for a moment concede!

That mind and manhood alike are served in a pre-eminent degree by the systematic study of chemistry, physics, and natural history has passed beyond dispute. The haste with which the colleges themselves are throwing over many of their traditional subjects to make room for these comparatively new studies, shows how general has become the appreciation of the virtue of these, when combined with laboratory methods, as means of intellectual and moral training.

I have spoken of the characteristic studies of the new schools as the best of all available means of both moral and intellectual training. I believe this claim to be none too broad.

I. The sincerity of purpose and the intellectual honesty which are bred in the laboratory of chemistry and physics stand in strong contrast with the dangerous tendencies to plausibility, sophistry, casuistry, and self-delusion which so insidiously beset the pursuit of metaphysics, dialectics, and rhetoric, according to the traditions of the schools. Much of the training given in college in my boyhood was, it is not too much to say, directed straight upon the arts which go to make the worse appear the better reason. It was always an added feather in the cap of the young disputant that he had won a debate in a cause in which he did not believe. Surely, in these more enlightened days, it is not needful to say that this is perilous practice, if, indeed, it is not always and necessarily pernicious. Even where the element of purposed and boasted self-stultification was absent, there was a dangerous and a mischievous exaltation of the form above the substance of the student's work, which made it better to be brilliant than to be sound.

Contrast with this the moral and intellectual influence of the studies and exercises I am considering. The student of

chemistry or physics would scarcely know how to defend a thesis which he did not himself believe. In that dangerous art he has had no practice. The only success he has hoped for has been to be right. The only failure he has had to fear was to be wrong. To be brilliant in error only heightened the failure, making it the more conspicuous and ludicrous. How wholesome to the mind and heart of the pupil is such a regimen!

II. Again, in addition to the graces of sincerity and intellectual honesty, which are the proper traits of physical and natural science, altogether aside, too, from any future technical uses to which the arts or the information acquired may be put, there is great virtue, as training for practical work in life, of whatever kind, in whatever sphere, to be found in the objective study of concrete things, which so largely makes up the curriculum of the scientific school.

III. Still another advantage which I claim for the characteristic studies of the new schools is that, in a very large degree, they dispense with the system of examinations, which has become the curse of modern education. The recent remarkable outburst in England, from educators of every name and class, against that system, justifies the strong terms I have used. It is admitted on all sides to be a problem of the greatest difficulty, so to adjust the scheme of examinations that they shall not largely neutralize the good effects of sincere, straightforward study.

So far has cramming been carried in English universities, and even in our own colleges, that examinations have largely ceased to be a test of the scholar's attainments, much more of his real proficiency in his studies. Students who have a marked facility in this sort of thing acquire, in time, the faculty of passing creditably examinations on matters of which they know almost nothing. By steadily cramming for a few days and nights, under artful coaches, who know the professors' weaknesses and fads, a young man, exceptionally expert, can "get up" a subject, of which he would be troubled, the morning after examination, to give an intelligible account.

A special organ—the examination organ—becomes developed, which is as specific as the water-sacks attached to the stomach of a camel, intended only to carry a certain amount of refreshment over a very dry place for a very short time. Indeed, the comparison fails to do justice to its subject. The examination organ is at once as specific and as external as the pouch of a kangaroo.

From this serious difficulty, schools of applied science and technology are, by the very nature of the case, largely freed. Indeed, the inapplicability of the scheme of examination to these studies has even been made an argument against their introduction into universities. Prof. Josiah Parsons Cooke, in addressing a body of students at Harvard, recently said: "When advocating, in our mother university of Cambridge, in Old England, the claims of scientific culture, I was pushed with an argument which had very great weight with the eminent English scholars present, and which, you will be surprised to learn, was regarded as fatal to the success of the natural science *triposes* then under debate. The argument was that the experimental sciences could not be made the subjects of competitive examinations."

It is not true that chemistry and physics cannot be made the subject of examinations after their kind; but it is true that, under competent teachers of these sciences, examinations have far less of the character of a cram and far more of the character of a test of ability to do work. Moreover, in such a scheme of instruction, as a whole, examinations perform a much less important part; while the daily and weekly exercises in the laboratory become continually of more and more account as a means of ascertaining the scholar's real progress. In this, the schools of applied science and technology comply with the demand of modern thought in pedagogics. In no department of life more than in education is the scripture precept of authority: Let the dead bury its dead. The best examination which a student can pass is to show his ability to *do the next thing*. If he can pass this examination successfully, the teacher need give little thought to what has gone before.

IV. The last of the advantages attendant on scientific instruction which I shall enumerate, though the list might be still further extended, is found in a better relation between teacher and pupil. I would not willingly be guilty of exaggeration in this matter. With a really great and gifted teacher, the attitude of the scholar will alway be that of respect and admiration, whether with or without affection and personal intimacy. But it cannot be denied that, in the traditional college, with the traditional subjects of instruction, the relation in question is likely to be less than a happy one. On the one side, there is apt to be an undue assumption of knowledge, a tendency to dogmatism, and a too peremptory way of dealing with the pupil's doubts and difficulties. On the other side, there is apt to be something of the tone of resistance, if not of resentment; a disposition to escape the teacher's scrutiny, if not to get around him with the petty tricks of the recitation-room.

It would be foolish to assume that there is any virtue in the natural and physical sciences which will overcome the faults or deficiencies of mind and heart that are found in some teachers. There are men who will be priggish, pompous, and pretentious in doing anything. But there is a wonderful virtue in scientific studies for bringing teacher and scholar together in their work in a most simple, natural, and affectionate relation. He is the most successful teacher of science who puts himself in the attitude of discovering truth with his pupil, and of hunting with him for the object of their common search. Moreover, the very closeness of the contact in the laboratory of chemistry, physics, or mechanics, is such as to cause a continuous, insensible discharge of the electricity generated by the necessarily strict requirements of study and discipline, and thus to maintain the friendly relations of teacher and pupil, unbroken by those storms which sometimes gather and burst in colleges where the teacher sits, buttoned-up, on a platform behind his desk, and lectures to his pupils from the chair of authority.

But it may be said: Conceding all that may be claimed for the purely educational advantages of the scientific studies

which run through the curriculum of the technological schools, why may not all these advantages be equally obtained by the student of the traditional college, and even to better effect, since there he may secure the pure gold of truth freed from the alloy of baser metal, by which term the critic would designate the useful, practical applications of science. It is here that it behooves me to take issue, most directly and aggressively, with those who assert for the old-fashioned colleges an educational virtue superior to that of the schools which I represent. It is of the very essence of my case that the directness and immediateness of application to which the studies of our pupils are subject, under their very eyes and at their very hands, constitutes a tremendous educational force, securing a closeness and continuity of attention on the part of the pupil, an earnestness of effort, a zeal and enthusiasm of work which it is utterly beyond the power of the teacher of classics or philosophy to arouse, except in the case of gifted students. If proof of this upon a large scale be needed, it is enough to refer to the well-known fact that law schools and medical schools invariably command the energies of their pupils in a far higher degree than do the colleges; and that hosts of young men who have idled and dawdled away the four years nominally devoted to classics and philosophy, throw themselves with splendid enthusiasm into their professional studies when once they, for the first time, see upon what ends their efforts are directed, and how their energy and application are to promote their happiness and usefulness in life.

Even in the case of those young men who need no such incentive to secure their faithful attention and earnest endeavor, I hold that schools of applied science and technology possess a distinct advantage, in that their students learn the truths of science in a somewhat different way, and, as the result, know them somewhat better than do those who study these truths, no matter how diligently, without immediate, direct, and constant reference to their applications.

Without referring further to the limitations and defects inherent in all academic systems of recitation and examination,

I believe it to be true that the man who, in studying mathematics, for example, has only to look forward to a recitation to-morrow and an examination two weeks or two months hence, applies himself to the subject necessarily in a different spirit, and also necessarily with an inferior result, in contrast with the man who, as he acquires his mathematics, continually puts it to use day by day in the laboratory of physics, mechanics, hydraulics, or steam engineering.

For these reasons I must decline to accept the characterization of the technical applications of science as the alloy which debases the pure gold of truth. I look upon them, rather, as the tough, elastic bow, which sends the keen shaft to its mark. And, be it remembered, zeal and enthusiasm of work are not to be valued merely because, or merely as, they secure directness of attention, continuity of application, and sustained endeavor. In themselves, of themselves, they are, in a high sense, an educational force, telling immediately and telling powerfully upon intellect and character, contributing importantly to build up mental and moral substance firmly and healthily.

A great deal more might be said in comparison of the influence of scientific teaching, as carried on in the schools of applied science and technology, with the influence of the traditional, or of the more modern, modified, curriculum of the classical colleges; but perhaps enough has been said to justify the assertion that the former class of institutions are just as truly educational as the latter. Here I am content to rest my case. This conceded, let the youth of the land seek the one or the other kind of school, according to their individual tastes, predilections, and plans for life. I am far from being so bigoted as to suggest that there is not room enough in the educational system of the future for all the institutions of the elder type which have achieved for themselves a name in letters and philosophy; which have, with pains inexpressible, wrought out their own problems and created their own constituencies; and each of which has a host of eager, devoted alumni, ever turning gratefully to the halls in which they were

nurtured, and delighting to give to the old college the fruit of their labors and the fruit of their loins. But I confidently look to see a largely disproportionate number of the new institutions which shall from time to time come into being, built essentially upon the plan which has achieved such prodigious successes during the quarter century now closing. Doubtless, the present general scheme of the schools of technology will itself undergo considerable modification, alike from the results of added experience, from larger means, and from the infusion of a wiser and more generous spirit. Doubtless, more of the economic, historical, and philosophical studies will be introduced, to supplement, by their liberalizing tendencies, the work of the sciences in making the pupils exact and strong. Possibly, some ultimate form for institutions of the higher learning may yet be developed, which shall embody much of both the modern school of technology and the old-fashioned college, with, perhaps, something taken from neither, but originating in the larger, fuller, riper life of a happier and richer future.

FRANCIS A. WALKER.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
BOSTON, MASS.

II.

AMERICAN PIONEERS OF UNIVERSITY EXTENSION.

The term University Extension is comparatively new in this country, but the thing itself is old. As early as 1808 a course of popular lectures in chemistry was given by Professor Benjamin Silliman (1779–1864), of Yale College, for the benefit of a class of ladies and gentlemen in New Haven. The class met in the college laboratory, and the lectures were accompanied by experiments. "This course," said Professor Silliman in his reminiscences, "was the opening of a series of labors performed many years afterward, with popular audiences, often in large assemblies, and sometimes in distant cities." College and university lectures for New Haven people have been continued, in varying forms, down to the present day.

The idea of instructive courses in natural science was extended by Professor Silliman from his coeducational class to the mechanics of New Haven in the years 1831–33. In a letter to the New York *Times*, March 22, 1891, a writer claims priority of University Extension for old Yale. He says that about 1828 Mr. James Brewster, a leading citizen of New Haven, erected a large building called Franklin Hall, at the corner of Church and Crown Streets, for the purpose of disseminating scientific knowledge among people not connected with the college. Mr. Brewster had previously interested himself in the development of a Mechanics' Institute, which, it is said, still exists under another name in New Haven. Professor George P. Fisher, in his "Life of Benjamin Silliman" (ii: 326–327), quotes a letter from Mr. Brewster to Professor Dana, which establishes a strong case for Yale College Extension, fifty years ago: "Professor Silliman ever evinced a deep feeling of interest in the moral and intellectual improvement

of the mass of the people. Prompted by his encouragement, I erected Franklin Hall for the purpose of providing instruction in the elements of mechanical science to those who could not attend lectures in the daytime. He assisted me in obtaining the means to illustrate the experiments to be made, and introduced me to his assistant in Yale College, Mr. Charles U. Shepard [afterward of Amherst College], who assumed the position of curator of Franklin Hall. Professor Silliman and Professor Olmsted gave courses of lectures to the people of this city. The beneficial effects were manifest by the erection of steam-engines, and the perfecting of machinery, greatly aiding in the development of mechanical skill in its application to the useful arts. These benefits have long been manifest in all departments of business. *This was the first time, I believe, that college professors had gone out to lecture upon natural and mechanical science.*"

A further extension of influence by Professor Silliman occurred in 1834, when he began to lecture outside of New Haven. His first course was given in Hartford in the lecture-room of the Centre Church, upon the subject of geology. The lectures were attended by three or four hundred of the most intelligent citizens of that town and were well illustrated by drawings and geological specimens. Every morning the professor devoted an extra hour in the lecture-room to a conference with persons who wished to see his specimens and hear additional explanations. This was an anticipation of the modern "class," or conference, in connection with University Extension lectures. From New Haven and Hartford, Professor Silliman's public-spirited work was extended, in 1834–35, to Lowell, Salem, and Boston.

In the Athens of America, an introductory lecture, like that of Professor Stuart, of Cambridge, when he captivated the English workingmen at Crewe, was given upon the subject of meteors: "A large and brilliant audience was before me; much larger than any that I had ever addressed. I was awed," adds the Yale professor, "but not abashed." Silliman's first lecture to the Bostonians in 1835, like Stuart's to the English work-

ingman in 1867, was a phenomenal success. Mr. William J. Loring immediately announced, on behalf of the Society for Promoting Useful Knowledge, a systematic course on geology. "This course," says Silliman in his reminiscences, "was my first great success, both as regards reputation and remuneration." The subscriptions yielded $2000. There was an afternoon and an evening course. Both were thronged. "The audience is not surpassed in numbers and intelligence by the assemblies of the Royal Institution in London." Mr. Abbott Lawrence told the lecturer that no man had ever drawn together in Boston such audiences, both for number and character. Returning home, Silliman naïvely rejoiced that he has been permitted to sustain the honor of his college. After "six anxious years" of public lecturing in Boston, he is still deeply impressed with his responsibility for the honor of Yale College, the faculty of which had urged him forward in this public work. He rejoices that he has been successful in making the subjects on which he had spoken intelligible and attractive, without diminishing the dignity of science or neglecting Yale College. President Woolsey once said: "There were, I believe, in the universities of the Middle Ages, orators annually appointed who represented their communities on public occasions. He [Silliman], in his prime, was our standing orator, the principal medium between those who dwelt in the academic shade and the great public."

The Yale professor lectured in Nantucket in 1835. In 1836 he gave a geological course in New York to many of the first people of the city and to what he called "a solid mass of intelligence from the middle classes of society." In 1838, after a second course in Boston, he was consulted by Mr. John A. Lowell regarding the best mode of organizing and equipping the Lowell Institute. He was engaged to give the opening course of lectures on geology in that People's University of Boston. By special arrangement with Mr. Lowell, Professor Silliman gave four courses of scientific lectures upon geology and chemistry, extending through four winters. Public interest continued unabated. The Lowell Institute lectures, being

generously endowed, were made free to the public. There were as many as ten thousand applications each season for tickets to hear Silliman. He regarded it as the most arduous scientific engagement, and at the same time as the greatest honor of his life, to give the introductory courses in such a splendid institute as that of John Lowell, who had completed his will on the ruins of Thebes. Edward Everett, Governor of Massachusetts at the time the Lowell Institute was opened, said, "The few sentences, penned with a tired hand by our fellow-citizen on the top of a palace of the Pharaohs, will do more for human improvement than, for aught that appears, was done by all that gloomy dynasty that ever reigned."

The impulse to higher popular education, given first through the Franklin Institute of New Haven, and afterward through the Lowell Institute in Boston, was extended by Professor Silliman to distant cities in the South and West, to Pittsburgh, Baltimore, New Orleans, Mobile, Natchez, and St. Louis. Almost everywhere Yale men were the organizing influences that made these local academic lectures possible in days before University Extension was heard of. Professor Silliman continued this public educational work for a quarter of a century, from 1834 to 1859, from his fifty-fifth to his eightieth year. At the close of this remarkable experience he said, "I conceive that in no period of my life have my efforts been more useful, both to my country and my family; and as regards professional labors, there is no part of my career which I reflect upon with more satisfaction." Joseph Henry, Secretary of the Smithsonian Institution, said that Silliman "was the first to introduce in this country public lectures illustrated by experiments on a scale of magnitude and of a character to interest a popular audience; and his success in this enterprise was such as to give an impulse not yet exhausted to a means of adult instruction which, though it has been abused, is well calculated, under proper regulation, to effect much social and personal good."

The career of Professor Silliman as a public lecturer was nearly synchronous with the rise of American lyceums,

through which the influence of college educated men made itself widely and deeply felt upon the American people. Dr. William E. Channing (1780–1842), writing in 1836, said in praise of lyceums: "I have long seen with much satisfaction the diffusion through our country of institutions for the intellectual culture of the people. I have rejoiced in the establishment of lyceums and popular lectures, and I feel that every one is bound to do what he can to forward these good works. By this I do not mean that I consider such institutions, in the present form, as fitted to meet all our wants. The lectures are too disconnected, and too generally intended for mere amusement, to stir up the minds of the hearers to any strong and enduring activity. But we must not despise the day of small things. A lyceum, or young men's association, though liable to the charge of giving superficial knowledge, is still a promise, a harbinger, of something higher. It is a sign that the people are beginning to hunger for more refined pleasure and increasing knowledge. It shows that intellectual life is at work and spreading through the community. Such an omen I hail with joy."[1]

Two of the most highly developed types of city lyceums, the Lowell Institute in Boston and the Peabody Institute[2] in Baltimore, both founded by Massachusetts men, still flourish with ever-increasing usefulness. While other means of higher popular education are now springing into vigorous life in the Pratt Institute of Brooklyn, the Drexel Institute of Philadelphia, the Metropolitan Museum and the American Museum of Natural History in Central Park, New York, and in similar institutions elsewhere, it should never be forgotten that this country has already passed through a remarkable phase of higher popular education by lyceum lectures of no mean order.

[1] Memoir of Channing, vol. iii, 87.

[2] The Peabody Institute, of Baltimore, offers annually to the public thirty superior lectures upon literary, historical, and scientific subjects at the slight charge of $1.50 for the entire course. During the winter of 1890–91, Mr. Richard G. Moulton, the English University Extension lecturer, gave two courses before this Baltimore lyceum.

This old lyceum system was fostered by such men as Daniel Webster, Dr. W. E. Channing,[3] Edward Everett, Ralph Waldo Emerson, Theodore Parker, E. H. Chapin, Horace Mann, Charles Sumner, Thomas Starr King, Wendell Phillips, John B. Gough, Henry Ward Beecher, and George William Curtis. It developed at least one generation of noble orators and patriotic leaders. It has left to this day high standards of public speaking in America. It contributed in no small degree to the rise of the abolition and temperance parties in American politics. Its intellectual and moral influence is still moving on in the West and the New South, where old-fashioned oratory lingers and where the Chautauqua Summer Assemblies are at once a curious survival and an edifying combination of the camp-meeting, or religious folkmote, with the old lyceum idea of popular education by local lectures. College and University men are now everywhere at work in these summer assemblies. Indeed, some of our American institutions of learning have long been encouraging summer schools upon their own academic premises. For example, Harvard,[4] which first (1873) developed the American summer school of natural science, has now a great variety of summer courses; so have the Universities of Virginia, Indiana, Wisconsin, and many other State institutions.

It is no secret that the summer schools of Oxford and Cambridge were suggested by American experience. It is well known that the idea of English Home Reading Circles, and of a National Home Reading Union, were "consciously borrowed" from Chautauqua. While Americans are now wisely introducing from England her well developed methods of University Extension, it is not improper to point out the above facts and to observe that, for nearly a century, each of the two countries has been working out, in its own way, the

[3] Channing's lectures on "Self Culture" (Works, ii, 349-411) and on "The Elevation of the Laboring Classes (v, 153-230) were given to the mechanics and apprentices of Boston in 1838 and 1840.

[4] The Harvard faculty have voted that work done in their summer schools may, with the consent of the various departments, be counted as regular work toward the degree of A. B.

problems of elementary and higher education for the people. In our eagerness for public improvement, let us not ignore our own educational history, nor forget that we have long had in this country certain blessings of our own, some of which England is just acquiring, namely, free common schools and the true university spirit of teaching and research.

In a letter written in 1835 by Dr. William E. Channing to Josiah Quincy, President of Harvard University, there is a remarkable anticipation of the essential idea of University Extension: "The education of the people seems to me more and more to be the object to which the college should be directed. This institution has always existed, and exists now, for the people. It trains young men, not so much for themselves, as that they may be qualified to render services to the community; and perhaps they render no higher service than by spreading their own intelligence and giving a higher tone to the public mind. Cannot the college do more for this end? I hope it may. If it can furnish a course of philosophical instruction, which can be pursued by a greater number than now pass through college; if it can extend the demand for this higher education by supplying its means, and if it can give a rank to those who enjoy this advantage, it will render inestimable service to the community.

"Perhaps the most important inquiry for the friends of the college is, How can it become a popular institution, an object of public interest, without narrowing at all its present course of instruction? Its well being requires that the community should look to it as their friend and benefactor. I do not, however, think so much of the prosperity of the college, in the suggestions now made, as I do of the general improvement of the people. Popular education is a more important interest than any particular institution, involving, as it does, the religious and political as well as intellectual good of men. The progress of society can hardly be aided more than by bringing greater and greater numbers under the influence of moral and philosophical instruction. I wish that the College may take an active part in this great work. It has an exten-

sive apparatus of means. Can it not render them more productive?"[5]

If one should attempt to investigate the lines of University Extension that have gone out, since the days of Channing, from Harvard, in graduate or professional ways, for the higher education of the American people, he would enter a boundless field of inquiry. It would not be difficult to show that the popular influence of that institution has widened with every decade. Without discussing here the part which Harvard has played in the development of school and college education, and in the lecture courses of Boston and of the country at large, I note in passing that a system of outside lectureships was inaugurated at Harvard, for the benefit of the university and the people of Cambridge, at the very beginning of President Eliot's administration in 1869. Distinguished specialists were invited to give public lectures under the auspices of the university. Among these courses were Dr. Samuel Eliot's upon "The History of the Nineteenth Century"; Ralph Waldo Emerson's upon "The Natural History of the Intellect"; W. D. Howells's on "New Italian Literature"; John Fiske's on "Positive Philosophy"; and many others. The system was not altogether a success at Harvard. President Eliot, in a public address in Baltimore, February 22, 1878, said: "I have seen the results of this plan at Harvard, where they [short lecture courses] were kept up for some time, but I do not consider them very profitable. The result, as I observed it, was that they encouraged short, detached work, not that year by year."[6] This is undoubtedly the defect of all such courses, unless duly coordinated with private reading or regular class instruction.

The Johns Hopkins University, from its very beginning in 1876, has offered continuous and systematic courses of public lectures, often as many as twenty in a course,—with a printed syllabus and bibliography,—to Baltimore audiences, ranging from 200 to 700 hearers. Without employing any characteristic name for its missionary or extension work, at home or

[5] Memoir of Channing, vol. iii, pp. 84–85.

[6] Baltimore *Evening Bulletin*, February 23, 1878.

abroad, the institution has been actively engaged for the past fifteen years in widening its usefulness. The system of public lectures, comprising a great variety of subjects and methods of treatment, has been continued with increasing success down to the present time. Class courses have been provided for school teachers; special courses for special students; for lawyers, physicians, clergymen, bankers, business men, and practical workers in city charities. Public readings have been given in Homer, Dante, Chaucer, and Shakespeare. Lectures on poetry, art, and archæology, and many other courses of public instruction, often with a text-book and lists of good authorities, have been welcomed by cultivated people in Baltimore.

Seminary exercises or conferences in American history, for the joint benefit of young lawyers from the city and Hopkins students, were begun in the library of the Maryland Historical Society in 1876, and were continued in a class-room at the Peabody Institute in 1881. Extended courses of public lectures were given under university auspices at the Peabody Institute by Edmund Gosse and Professor Corson in 1885, by Professor Lanciani in 1887, and Professor Andrew D. White in 1888. In connection with Professor White's lectures on the French Revolution, a printed syllabus was used. Class courses in natural science, with elaborate experiments, were early conducted at the Peabody Institute, by individual Hopkins professors, for classes of young ladies from Baltimore private schools.

In the fall of 1879, through the exertions of the Rev. J. Wynne Jones, of East Baltimore, was organized the Workingmen's Institute of Canton, an industrial district with a busy population of four or five thousand laborers, employed in iron works, copper works, oyster packing, etc. Mr. Jones had been impressed with the story of Dr. Channing's lectures to workingmen (1838–40), and with the good example of the Workingmen's College in London (1854).

A committee representing the different industries of Canton was appointed to call upon President Gilman and invite him

to deliver the opening lecture. This was promptly done. Through the efficient co-operation of Mr. N. Murray, of the Johns Hopkins Press, who became the secretary of the institute, a course of twelve "Lectures for the People" was arranged for the winter season of 1879–80. In the opening lecture President Gilman explained the character of the proposed course, and suggested possible lines of development for the institute: (1) lectures, relieved by stereopticon illustrations and good music; (2) a local reading-room, with periodicals and illustrated journals; (3) a circulating library; (4) supplementary evening classes, with lessons in drawing, and the keeping of accounts, economy, co-operation, and the principles of business. He suggested also the cultivation of flowers indoors, in yards and windows, as adding much to the pleasures of city life, with occasional exhibitions to stimulate rivalry. He expressed the belief that four or five such institutes as that at Canton might thrive in Baltimore. Many of these suggestions have since been carried out.

Among other university lecturers at Canton, from 1879 to 1881, were Professor H. N. Martin on "Some Uses of Plants"; Professor Remsen on (1) "The Air We Breathe" and (2) "The Light We Use"; and Dr. W. W. Jacques, now electrician of the Bell Telephone Company, on "Electricity," illustrated by experiments. Literary as well as scientific lectures were given. Professor J. J. Sylvester, one of the original lecturers in the Workingmen's College at London, and now professor of mathematics at Oxford, read some of his metrical translations from Schiller; Professor Albert S. Cook, now of Yale University, lectured on the life and writings of Shakespeare; and Dr. H. B. Adams gave an illustrated talk on Venice and the beginnings of modern commerce. Dr. S. F. Clarke, now of Williams College, illustrated the physical geography and political history of the United States by beautiful maps and charts. Mr. C. L. Woodworth, then a teacher of elocution at the university, delighted his audience by dramatic and humorous readings. Vocal and instrumental concerts were occasionally given by the best available talent in the city. A

local reading-room was opened at Canton and flourished for some years in connection with a circulating library.

The lecture courses at the Workingmen's Institute in Canton, in East Baltimore, led directly to another interesting pioneer experiment. In 1882, a course of four lectures on biology was given by instructors in the biological department of the university to the employees of the Baltimore and Ohio Railroad, and to their wives and daughters. This course was supported by the late John W. Garrett, president of the Baltimore and Ohio Railroad, who paid the necessary expenses, and published—for free distribution among his employees—the four lectures given by the instructors, in a neat pamphlet of ninety-eight pages, with illustrations.[1] The subjects of the lectures were as follows: (1) "How Skulls and Backbones are Built," by Professor H. Newell Martin; (2) "How we Move," by Dr. Henry Sewell; (3) "On Fermentation," by Dr. William T. Sedgwick; (4) "Some Curious Kinds of Animal Locomotion," by Dr. William K. Brooks.

All the above work was in one sense University Extension, but it was never called by that name. M. Jourdain, in Molière's comedy "Le Bourgeois Gentilhomme," after taking a private lesson, found to his surprise that he had been talking prose all his life. Perhaps our American colleges will discover some day that they have all been engaged in University Extension without knowing it.

HERBERT B. ADAMS.

JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MD.

[1] Baltimore: Friedenwald, 1882

III.

IMPRESSIONS FROM GERMAN SCHOOLS.

I am frequently asked what interested me most in my recent visit to the schools of Germany, and I invariably reply, "The teacher." The place which the teacher has made for himself in the educational system of Germany is certainly most impressive.

This place of responsibility and influence is not newly acquired. It is an inheritance from the past; a transmission of powers won by the courage, zeal, and intellectual strength of the teachers of three centuries. Beginning with the Reformation, —the time from which the present school system of Germany dates,—the teacher has filled a prominent place in all educational reforms. Witness the work of Luther, Erasmus, and Melancthon; of Trotzendorf, Wolf and Sturm; of Ratich, Comenius and Pestalozzi; and of a host of others, not only in promulgating new philosophies and methods of teaching, but in putting into practice new courses of study, in calling out for education the active interest of princes and people, and, wherever it was necessary, in shaping legislation relating to education both high and low. It is this inheritance of influence in educational affairs into which the German teacher of to-day has come, and most worthily, as I believe, does he use it and keep it.

He does not wait for writers of occasional and sensational articles to shape public opinion—writers whose criticisms of the schools rest on no knowledge of their condition and whose conception of their needs has not the basis of philosophy or experience. Neither does he allow newly-fledged members of school boards to initiate schemes of reform, which are meant to show their ability as reformers and to advertise their fitness for political preferment. The German teacher does not take his cue from such men, nor does he wait to take his cue from anybody. He prefers to have the first as well as last word in all questions of reform—whether it be in methods, programmes,

or organization. To him belongs almost exclusively the privilege of educating the public in school affairs through the public press. He uses professional association meetings, of which there are many, in discussing questions of reform ; and he exercises the right of petition to the government all the more readily, because he knows that his petition will be heard.

The present notable measures of reform of higher education had their rise in associations of teachers who formulated their opinions in a monster petition of over twenty thousand signers to the Prussian Diet two years ago. Whether it was this petition which caused the appointment of the recent commission in Prussia, it is hard to say ; yet there can be no doubt that the schoolmasters themselves began the discussion of the questions considered in the conference of last December, and the government's confidence in their ability to pass judgment upon the subjects presented was shown in the large number of school men appointed to serve on the commission.

The influence of the teachers in inaugurating reforms and in guiding legislation is due partly to the fact that they are, upon main issues of administration, clear and united, partly because they insist upon being heard, and partly because their action is pointed and systematic. I well remember the earnestness and point of a discussion carried on by a village association in Southern Germany. The association consisted of eight men—all the teachers of the town. The subject was manual training. Two or three meetings had been held previously, and the conclusions of the association were carefully noted in a series of statements, after being discussed and voted upon. These conclusions were to be sent to a higher body, which was to formulate all conclusions received, and print them in what is called a Year Book. Who can doubt that conclusions thus reached would and should have great weight in the councils of the nation ?

Comparing the teachers' influence in Germany and in our own country, I am painfully impressed with the difference. In this country not only do teachers fail to make themselves felt, as they should be felt, in certain features of school legis-

lation, but they frequently are obliged to give way to the politician in matters purely professional. What is the reason of this apparent want of influence on their part? We may attribute the prominence of non-professional leadership in educational affairs to our peculiar form of government. But is that the whole cause? Have the teachers of America asserted themselves as constantly and persistently as they should? Or, in asserting themselves, have they had the scholarship and professional training necessary to win the respect of intelligent men and to command attention to their claims?

The low standard set for teaching in most parts of our country is a source of weakness which I believe should be corrected, and the demand for improvement should come from the teachers themselves. For the sake of ourselves and our profession, but more for the sake of our schools and children, we should insist upon the State's demanding higher qualifications for teachers. So far at least we could follow with profit the example of Germany. The normal school course should be extended to three years, and larger opportunities should be given for professional practice. Graduation from such a course, or its equivalent, should be required for the position of teacher in elementary schools. Of the secondary school teachers there should be demanded, in addition to high scholarship, at least one year of professional training. When all this is done, the State or municipality should follow another example of Germany by giving to all worthy teachers a life tenure of their office. Then, and not till then, shall we have a profession of teaching in the sense in which it is recognized in Germany.

I have spoken of the teacher's influence in Germany in what may be called outside affairs. In the schoolroom, his personality is even more marked. Here one learns the secret of his power, which is that he is in earnest in carrying out a purpose. That is what most impresses visitors from abroad. They may not always think the purpose a good one, but the value of a well-defined purpose is clearly seen, especially when behind

that purpose—as is generally the case in Germany—there is both intelligence and professional training. Ask any teacher of the elementary or secondary schools there the reason for any particular method or practice and you will find him ready with an answer, given in a way which leaves no doubt as to his sincerity, even though he does not convince you of the wisdom of his course.

Thus there are in Germany at the present time certain fixed and systematic regulations, largely planned by teachers, requiring positive ends to be reached and yet permitting large freedom to teachers in interpreting as well as in reaching those ends. From these conditions one sees that the schools of Germany are both conservative and progressive: conservative in having an organization planned by the accumulated wisdom of a dozen generations of earnest men, and progressive in having a body of teachers well educated, and possessed of great freedom and independence of action. As a consequence, the schools are well fitted to carry out the purpose of their maintenance; and as they are the result of growth and wise experience, they constitute a worthy object of study for other nations. Can America learn anything from them? I believe she can, in spite of the half expressed fears, occasionally heard, lest American schools shall become Germanized. So long as there is anything in common in the natures and purposes of the two peoples, so long may they learn from each other lessons of importance in matters of education. And I believe at present we can learn more from them than they from us. What are some of those lessons?

I have alluded to two features of organization which we may well borrow from Germany: (1) better qualifications for teachers, (2) a stronger tenure of the teachers' office. To these may be added a third, viz., a more orderly and thorough system of supervision of the schools—a supervision which will help to encourage and support the best work of the teacher and head off the mischief which is now frequently made by ambitious and ignorant members of school boards.

In courses of study, also, we may adopt some features of

German courses which differ materially from ours. Nature or elementary science lessons should have as prominent a place in our programmes, and should be as systematically planned, as arithmetic or geography. The work in arithmetic should be lessened in amount and rearranged to suit the needs and capacities of the pupils. Time should be provided for physical training, which should have as scientific a basis as intellectual training has. More time should be given in our high schools to a single science than is now generally given, and the courses and classification should be so arranged that pupils can, if they wish, begin the study of languages earlier than they do by two or three years.

In matters of helps, there should be provided by the State all needed text-books and apparatus, and there should be, in convenient places, museums containing all kinds of apparatus, text-books, and reference books. It is to our shame that we have not long ago established in this country institutions of these kinds. In methods of teaching, also, we find Germany a profitable field for observation. The limits of a magazine article will not permit me to go into details on this point: but the mere mention of the following characteristics of the German schools will suggest to us ways of improvement.

First. The general practice of leading the children to think for themselves, especially by the use of objects and pictures. *Secondly.* A careful preparation of each day's work by the teacher—both in planning how to present the various subjects and in storing the mind with much information about them. *Thirdly.* A vigorous watchful interest by the teacher in the subjects presented and in the pupils taught. I would not have our teachers adopt the same vigorous means of securing exactness as are sometimes employed by German teachers, but I wish they could have some of their enthusiasm in the schoolroom.

It is difficult to point out any one subject of study in which our weakness in these three particulars is most noticeable. Yet I venture to speak of geography, in which I believe our pupils should acquire more real knowledge by observation and

by thinking than they generally do, even though it be at the expense of some general information.

In visiting the schools of all grades in Germany, one comes to learn that the knowledge acquired is more *in*tensive than *ex*tensive. In the subject just mentioned, an incident comes to mind which illustrates this point. I was visiting a sixth or seventh grade in the famous Francke Institution at Halle, and was introduced to the children and given permission to examine them. They had just been reciting in geography, and now I thought was my opportunity. I had heard them, as I had heard other classes, wisely tell of the various soils, altitudes, and slopes of Germany, the causes of land and water formations, and the reason of certain climatic conditions, all in their own country. Now I thought I would test their knowledge, or rather their general information, about America. One half of the class I found knew something of New York. About an equal number had something to say of the great size of Chicago. But not one of all the forty or more boys of that class had even heard of *Boston*. A Bostonian would not soon forget such ignorance. Again, I remember the reply of a gymnasium boy to my question what he knew of Washington: "He, with Blücher, defeated Napoleon," he said. Washington and Wellington were all the same to him so long as the hated Napoleon was defeated.

But an American in Germany, if he wishes to keep a true judicial spirit, must forget that he is an American, so often is he reminded that his country has no history. I remember one teacher in a girl's normal school who gave all the history of America that was to be given, in two lectures. In one of the lectures he made no less than three misstatements; but they helped to serve his purpose of not unduly exalting a country which has already too many charms for German subjects.

In what I have said of the German schools I have felt called upon to emphasize their good features only. With such elements of strength, we should expect to find some elements of weakness. These faults have their origin in the ends or pur-

poses of a people who are intellectually strong, and whose political safety lies in keeping up a military spirit.

Few text-books are used in the elementary schools,—fewer, I believe, than is good for the pupils,—first, because a knowledge of the use of books and a good habit of using them are most valuable to people of any walk in life; and secondly, because a proper use of them prevents too great dependence upon the teacher. The habit of talking in the recitation clings to teachers of all grades and kinds to such extent as to preclude opportunities for quiet and independent thinking. So far at least our best teachers are in advance of the Germans.

Again, so far as I could learn, the cultivation of the will is sadly neglected in the schools of Germany; self-control is lost sight of in discipline, and obedience is exacted by the severest means. In this particular, at least, their teachers may learn wisdom from us. And perhaps they will be willing to do so when the menacing armies upon either side of their country are disbanded.

One word, in closing, upon our own prospects for the future. I have said that our schools were poor in comparison with the schools of Germany. And yet I believe I am not inconsistent in saying that the best we have is better for us than the best that exist in Germany. The trouble is, our very good schools are far too few. Instead of finding them everywhere as we do in Germany, in the country as well as in the city, and in all parts of each, we are obliged in this country to make a hunt for them, even in the most favored places. When they shall be found not the exception but the rule,—not depending upon exceptional conditions but the outgrowth of a wisely planned organization,—then we may not have to sit at the feet of Germany as learners, but can bid the teachers of that country come to us, and learn how to train boys and girls into intelligent, self-respecting, self-ruling, and God-fearing men and women. Let us work on with the hope that that time is coming!

JOHN T. PRINCE.

AGENT OF THE STATE BOARD OF EDUCATION,
NEWTONVILLE, MASS.

IV.

EDUCATION IN THE ELEVENTH CENSUS YEAR, I.

INDICATIONS FROM SCHOOL REPORTS.

The publications of the Eleventh Census show that its inquiries regarding education were along two distinct lines. First, the enumerators gathered from the people the number, age, sex, race, maternal nativity, and time occupied in school, of teachers and pupils; like particulars regarding illiterates, as far as applicable, with their occupations. The results are not ready for publication. Second, school officials were called upon for statements from their point of view. Customary reports were utilized as far as possible, and the general results are already published, subject to revision and closer classification.

For a century the Census has been a temporary bureau, suddenly organized and presently disbanded. Such a bureau can have but a moderate influence upon the forms of annual record on which it must chiefly depend for information. The use of a question theoretically important must, therefore, be determined largely by the ability to answer from records.

The Tenth Census collected a vast amount of information regarding schools, but the office was closed before anything except number, sex, and color of those enrolled in ordinary public schools was available. It seemed imperative on the Eleventh Census, therefore, to ask regarding education only a few salient questions requiring a minimum of labor for reply and whose general results could be quickly reached. To minimize trouble for school officers, they were asked to use their usual school year ending nearest June 1, 1890.

In view of all considerations of importance, readiness of reply and possibility of quick publication of results, inquiries

for ordinary public schools were condensed to the following form:

The enrollment for the year ending ——, 1890, was:

	WHITE.	COLORED.	AGGREGATE.	REMARKS.
Male pupils.				
Female pupils.				
Total.				
Male instructors employed.				
Female instructors employed.				
Total.				

Is any high school department included above? ——

If any high school department is included, please make the proper entries below.

The high school enrollment included above was:

[Here followed a blank statement like the above.]

The important item of effective attendance, in some states represented by the total number of days of attendance of all pupils, has not been recorded to an extent that would enable tables of national application to be prepared.

The item of average attendance, of some value for a single locality with a known duration of school, can be reached for groups of schools of varying duration, if at all, only by tedious calculation.

Additional questions were necessary for public universities and private schools and the subdivision parochial schools, with a view to an ultimate general classification as Elementary, Secondary, and Superior.

The number of teachers is omitted in the usual reports of two states.

Rhode Island alone, of all the states, appears to have been able to secure all enrollments of pupils in the year and to exclude duplications. Not only are transfers, promotions, and re-enrollments, which swell the annual enrollment of many towns and cities in the nation, set aside in the report of the

Commissioner of Public Schools of Rhode Island, but the duplications in the state by enrollment in different towns are pointed out. The officials of large states cannot so fully eliminate duplicates, but no worthy statistics of national school attendance will be available till the officers of districts, towns, cities, and counties, in each of which schools are managed as a unit, can state at least the number of different pupils annually enrolled in their respective units.

Sex controls the arrangement of classes, buildings, and grounds almost universally, and it is of high importance in school statistics for its local bearing on the conditions of child labor; yet twenty states have not been showing the sex of pupils in their published reports.

Color, as a superficial indication of race, is an important item in national inquiries, though over great areas pupils are of one race. Only California, Indiana, and Nebraska, North or West, have showed enrollment by color in their recent state reports.

School officers, state and local, generally rendered most cordial assistance. Teachers who had no record of sex or color in the past year were able to judge what allowance to make for changes with present facts before their eyes. Local officers often knew the sex and color in schools for which only number had been required for state reports. Superintendents Jackson, Alaska; Raub, Delaware; Pickett, Kentucky; Chapman, New Jersey; Finger, North Carolina; Massey, Virginia; Thayer, Wisconsin, secured reports from their states with the added item of sex of pupils. Superintendent Chapman also added color. The various bulletins explain what course was pursued for the color and sex columns of other states.

The first national school census was taken in 1840. Its classification fits well with the classification Elementary, Secondary, and Superior.

The following table presents the general changes that have apparently taken place in fifty years by decades:

TABLE I.

PUPILS ENROLLED IN SCHOOLS, EXCLUSIVE OF SPECIAL CLASSES, REFORMATORY, CHARITABLE, AND INDIAN SCHOOLS:

	1840.	1850.	1860.	1870.	1880.	1890.
Population.	17,069,453	23,191,876	31,443,321	38,558,371	50,155,783	62,622,250
All Schools.	2,025,656	3,642,694	5,477,037	7,210,420	... ...	14,225,000*
Primary and Common, 1840, Public, 1850, etc.	1,845,264	3,354,173	4,955,894	6,228,060	9,951,608	12,660,000*

* Approximate numbers, subject to revision.

The State Universities and other public schools not usually returned in the summaries of public schools, will give an additional enrollment for 1890 of about 65,000. The bulletins issued by the Census Office justify the use of 750,000 for private schools, and 750,000 for the subdivision parochial schools, subject to further increase by belated returns.

The errors in all the years seem to have had a fairly uniform influence, apparently partly due to the constancy of local conditions. The variations of school age and methods of administration must modify the value of any comparisons between two states. Great local changes adjust themselves into a moderate general effect. In illustration, compare the twenty years from 1850 to 1870, and the twenty years from 1870 to 1890. Population apparently increased in the first interval 66.26 per cent., and in the second, 62.41 per cent. Total school enrollment seems to have increased 97.94 per cent. between 1850 and 1870, and almost 96 per cent. between 1870 and 1890. Revision of returns will somewhat modify the rate for 1890, but the rate of gain in total school enrollment from 1870 to 1890 is likely to appear nearly identical with that from 1850 to 1870. The difference in the use of terms and the uncertainty of their interpretation in the various censuses, make minutely accurate comparison impracticable.

The term "public schools" is popularly used in recent years to include the great body of common schools, as they are called in certain states, maintained for local convenience, not usually including schools, universities for example, maintained

for the general public; nor the various schools, supervised in some states by Boards of Public Charities, less important in 1840. At the South, and to a degree in the North, public and private effort are often so combined that a rigid distinction is impracticable.

The public schools of recent years, to which the "primary and common schools" of that time most nearly correspond, did not form a distinct classification in 1840. The title in that Census, "pupils at public charge," would approach the present "public schools" only in limited portions of the country.

Under the limitations we have the following apparent conditions:

TABLE II.

Decades Ending	1890.	1880.	1870.	1860.	1850.
Gain per cent. of population. . .	24.86	30.08	22.63	35.58	35.87
Gain per cent. in public school enrollment*	27.22	59.79	25.67	47.75	81.77

* "Primary and Common" in 1840, "Public" in later censuses.

The great relative gain in enrollment in the first decade seems due in part to the enthusiastic development of free schools in the North and West, an effect subsiding in the second decade. The decline in the third decade is apparently partly due to the disturbance of social institutions by the war. The development of Southern public schools helps swell the rate in the fourth decade, equalized in the fifth decade to a closer relation to growth of population.

The recent public school movement in the South is only to be compared with the educational revolution between 1848 and 1860 in the states formed of the original Northwest Territory, except Indiana, where a legal decision caused delay, when the union free school, depending on local taxation to round out its funds, became the ideal.

This gain at the South, as forty years ago in the North, is partly at the expense of private school attendance. Academies and private schools have lately been rapidly changed into public free schools, in some cases retaining the original

chartered titles. Public funds are granted with growing liberality by states, and the maintenance of public schools by local taxation gains rapidly; to a great extent, however, under special laws.

The apparent relation of public school enrollment to population, white and colored, in the Southern states in 1890, and the relative increase of colored enrollment in the decade are seen in Tables III and IV:

TABLE III.

Divisions.	Population 1890.		Public School Enrollment 1890.		Per Cent. of Enrollment to Population.	
	white.	colored.	white.	colored.	white.	colored.
Total	15,493,323	6,944,915	3,358,527	1,288,229	21.68	18.55
South Atlantic Division.	5,567,440	3,287,395	1,168,557	582,668	20.99	17.72
South Central Division.	7,401,415	3,503,389	1,602,460	672,757	21.65	19.20
Missouri	2,524,468	154,131	587,510	32,804	23.27	21.28

The South Atlantic Division includes the coast states, Delaware to Florida, the District of Columbia, and West Virginia; the South Central includes all other recent slave states except Missouri.

TABLE IV.

Divisions.	Enrolled in Public Schools.				Per Cent. of Increase.	
	white.		colored.			
	1890.	1880.	1890.	1880.	white.	colored.
Total	3,358,527	2,301,804	1,288,229	797,286	45.91	61.58
South Atlantic Division.	1,168,557	859,510	582,668	379,543	35.96	53.52
South Central Division.	1,602,460	980,338	672,757	393,697	63.46	70.88
Missouri	587,510	461,956	32,804	24,046	27.18	36.42

The colored race leaped from the illiterate slavery of fifty years ago, and in ten years it has taken rank with the white in eagerness to go to school.

A special land system exists in Texas, and its counties, like the townships of the Northwest, have school funds from land grants. National land grants have been of some value to other states of the Southwest. For the most part the South has no such aid, yet its earnest men and women have roused such a zeal that the educational danger to-day in whole states is that known in real estate circles as "a boom."

Several Southern states make appropriations to be distributed for the maintenance of schools, leaving buildings to be provided mainly by local contributions. The state of Texas, for example, in 1890 gave four dollars and a half for every child of school age, without distinction. Communities of stable property owners can erect commodious edifices if they choose; shifting tenantry, just beginning to know what ownership means, can hardly muster force to put up a log pen with a roof over it on donated land with donated timber. Property owners are able to lengthen out their schools by contributions and tuition fees, while men with empty pockets let their schools stop when the public money is exhausted. It is less a question of race than of resources and numbers. Weak districts anywhere in the United States have weak schools. With allowance for difference of climate, a clean, unchinked log cabin in Florida or Louisiana is better than any one of the hundreds of schoolhouses reported unfit for use in feeble districts of states where the snow lies deep for months. The question of ability has much to do with the expenditure for schools. Sparsely settled districts do not have schools like those of densely populated districts.

The public school enrollment of California, Oregon, Iowa, Minnesota, and all states east of the Mississippi and north of the Ohio River, except Rhode Island, shows a decline in the decade as compared with population. It is a question whether the total school enrollment has thus declined, or even the public school enrollment, to the degree indicated. Better rec-

ords may eliminate duplications to a greater extent than heretofore. It is seriously to be regretted that effective attendance could not be generally compared. It has evidently increased in some states in a greater ratio than the enrollment.

Some local peculiarities are of general importance.

In North Carolina contracts may be made with a private school to teach the local public school for the public money during an agreed time, in which the teachers are responsible to public officers.

In Georgia the public money may be legally used in a peculiar combination with private effort to extend schools beyond the time provided by public money. One hundred days' (five school months) free tuition is provided this year in Georgia, which closely corresponds with twenty-two weeks' average in Maine in 1890, remembering that private aid extends many Georgia schools beyond one hundred days.

In Alabama the pro rata allotment of public money may be paid to one who has found it necessary to send his child out of the district to reach a school, forming an indirect way by which public money may go to any private school.

There is a growing custom in several Southern states to arrange with private schools for public tuition in such a way that non-resident pupils, pupils out of school age, and pupils in special branches constitute the private school and pay tuition, while the public elementary free school, composed of local pupils of legal school age, occupies distinct rooms under teachers conforming to public school laws. This simplifies the business relations and is an economy of buildings to the community.

The union of public and private tuition is by no means peculiar to the South. In Massachusetts, towns are allowed to contract with academies to take the high school pupils.

In New York, under the system of examinations of the University of the State of New York, public funds are allotted to schools, public or private, which show that they are doing work of the prescribed standards.

In Texas, about one hundred and fifty counties (1891) are

subdivided into school districts; about eighty are called community counties. A community has no territorial boundaries, but consists simply of a number of people who have organized to support a school. There are also cities and districts with special charters adding local taxation to the resources of the schools, which is also possible in ordinary districts, but not in any single community.

The general population of New Mexico is not in the United States by any act of its own. It was the strong grasp of our hands that took a great tract into our borders and endowed its Spanish-speaking whites and sedentary Indians with citizenship, without asking their wishes or requiring any preparation on their part, except that they were Mexican citizens at the time of the treaty. The region has been but gradually affected by the customs of English-speaking people. The Spanish language still prevails over broad areas, and all public effort of the people is still closely related to the work of the church of their fathers. Nearly one-fourth of the schools are taught in Spanish, while more than a third are taught in English and Spanish. The national government publishes laws, important to New Mexicans, in Spanish as well as English. The public schools, up to the law of February, 1891, were almost indistinguishable from church schools. For New Mexico, therefore, in its present transition condition, neither church authorities nor public school authorities can definitely tell what enrollment or what expenditure ought to be credited to each. The children have been religiously taught, the teachers have been supported, the parents have been satisfied; but there is scanty record of particulars. In one county the reported school enrollment, strongly confirmed, shows fifty boys to one girl. Over the great stretches of this county, larger than Massachusetts, and with but a little over three thousand children of legal school age, girls cannot venture as safely as boys to the isolated schools. Here it is again emphasized that weak schools are less a question of race than of sparse population, small financial ability, and feeble social organization.

Public schools are nominally bound together in a system whose nerves connect the humblest district of the extremities with the head in the state capital. Not even a nominal system embraces the private schools. Some transient private schools of the census year left no record. Changes of name and of address confused correspondence for more permanent schools. The general response to the Census inquiries has been heartily cordial, but a reluctance to furnish information has evidently kept back some returns.

The citizen who believes that the public school should do all educational work; the opposite extremist who does not believe in even elementary instruction at public expense; citizens looking to the state to make general provision for universal education, and to private zeal to make provision for special needs, all have a vital interest in the enumeration of every private school as well as in that of every public school. Private school teachers of any high purpose have an interest in the aggregate efficiency of all schools including their own. Those interested in private schools from a religious motive generally recognize the importance of accessible statements of school enrollment and great labor is expended to secure accuracy in year books of organizations maintaining parochial schools, or elementary schools, in the congregations with religious instruction, and other schools that depend on a support broader than that of a local congregation.

While private-school teachers almost universally recognize the public importance of statistics of their attendance, there is a widespread feeling among them that their business affairs are not of public concern, and that private schools should not be pressed for minute financial statements till the citizen can secure for the school which depends on his taxes an intelligible balance sheet which he can compare with like statements from other parts of the Union.

Private institutions are reported by name with more or less fullness in the state reports of California, Georgia, Illinois, Indiana, Kansas, Mississippi, Missouri, New York (Regents' Report), North Carolina, Ohio, Oregon, Pennsylvania, South

Dakota, Tennessee, and Washington, by enrollment in the state reports of Connecticut, Florida, Iowa, Massachusetts, Michigan, New Jersey, New York (Superintendent's Report), Rhode Island, Utah, Vermont, Virginia, and West Virginia. The report of the Regents of the University of the State of New York is very full for academic and higher institutions reached by university examinations.

The report of the State Census of Massachusetts in 1885 is high authority for private school enrollment at that date. Few state officers claim completeness in their returns of private schools.

The National Educational Association has recognized the inharmonious condition of school statistics—one step toward a remedy.

The Census is the agency of the people for gathering great groups of facts into an intelligible whole at stated intervals. If the officers of the people in the smallest units of social organization have no records, or let them tangle like a mass of unwound yarn, time and labor will be required to obtain facts and arrange them in an orderly manner. Unfortunately, it is not a question of time, labor, and money only. No skill, patience, fidelity, and industry, even at unlimited expense, can obtain satisfactory results in a National Bureau of Statistics till the local records are reasonably complete and accurate. With clear local records, kept at imperceptible increase of cost over that of the present confusion of methods, the materials for national compilation would be ready at call, and a central bureau could be justly held to responsibility for errors in the grand result of combination.

In all the years of a so-called American school system, the country has not reached anything like uniformity in recording essential facts, or even in agreement as to what facts are essential. The great lesson of the Census of 1890 to the people of the United States, and to those connected with schools in particular, is the necessity of completeness and accuracy in local records of items essential for national information and comparison.

The Eleventh Census came in a period of peculiarly intense and sensitive feeling regarding religious instruction. Marked manifestations of this feeling have attracted general attention, though some have considered them temporary and due to local causes.

Numerous special institutions are maintained for instruction in theology. Missionary and education societies in most of the great religious bodies look after the training of remote negro, Indian, and white children, contracting to give instruction for the state and utilizing appropriations from national and state treasuries with general readiness. When the question of religion in daily elementary instruction bears upon the citizen's own neighborhood, sharply defined differences of view develop, though some are indifferent to the religious question. Hebrews and many Christians look to the state for so-called secular instruction, and to the church to extend the religious training of home. The Hebrews have strong educational organizations in great cities, maintaining some technical schools, and to an extent requiring attendance at the public schools as a prerequisite for admission to the Hebrew schools.

The Sunday-school partly satisfies the demand for elementary religious training by the church, but very large numbers of Christian people regard it as inadequate. Some strong supporters of the common schools, demanding additional definite religious instruction, are content to have the children called together in confirmation classes, or brief parochial schools, at hours or on days or in weeks that will not interfere with attendance at public schools. Others desire to have religious instruction united with intellectual training and physical development in all school life. On this view are based permanent parochial schools, diocesan schools, synodical schools, and private schools under church auspices. Parochial schools, for the first time distinctively noted in a census, now closely equal all other private schools, for which latter the religious idea is also the strongest motive.

There is a confusion of law and practice in the United States in marked contrast with the British "Grant in Aid"

plan, under which a government allowance has been made to any school, showing that it was helpful in general education, without discriminating between Mohammedan, Brahmin, Episcopal, Scotch Presbyterian, or American missionary schools. This system is most closely paralleled in this country by the plan of the Regents of the University of the State of New York, whose grants are not based on religious tests, but upon the scholarly character of the work.

The northwestern states were deeply agitated in the Census year by the parochial school question, centering in Wisconsin, and national results are already manifest from a heated contest which needs to be studied without bias and with the respect for the convictions of others which we demand for our own.

A decision of the Supreme Court of Wisconsin, published early in 1890, treated the King James version of the Bible as a sectarian book, and granted a *mandamus* against a district to discontinue its use. A Nevada decision had been adverse to the Catholic version. The sacred books of other faiths are liable to a like judgment. The Mormon Bible would hardly receive judicial favor. There is a movement to secure an amendment to the national constitution prohibiting appropriations of public money for sectarian uses. The rigid enforcement of such an amendment might affect not only humble districts where religious exercises are conducted in harmony with the views of patrons united in one faith, but it might cut away the financial reliance of superior institutions in which there are religious exercises.

The adherents of a form of faith often constitute whole districts, and their teachers, when of the same faith, conduct religious exercises in the school without offense to the patrons, greatly increasing the popular estimate of the strength of certian church organizations.

In illustration we may take the Mormons. The secretary of the Church Board of Education made a detailed statement, showing ninety-six teachers and 5092 pupils in the church schools, small numbers to those who have counted public

schools, in certain states and territories, with Mormon pupils and Mormon teachers, as church schools. On a broader scale the same applies to schools known by other names. The school is permanent, its daily exercises suit the present patrons, and when "Gentiles," or other dissenters from the dominant faith, make a change in the patronage, religious exercises undergo more or less modification or are omitted.

The reports of the census year indicate that a constitutional amendment forbidding appropriations of public money to sectarian schools, combined with decisions that Bibles are sectarian books, would produce effects not yet measured. Enormous additions must be forthcoming from private sources in the relinquishment of public moneys if religious exercises are retained, or a change in numerous schools must be made if the public aid is continued, whether in the extremes of the country or at the seat of government.

The Board of Education of Massachusetts, in a report for 1890, recognizes a gain in private schools. Private school enrollment in other states as well as in Massachusetts has evidently grown at the expense of public school enrollment. The official school reports of the decade have been debating the completeness of the public school and the motives that prompt the establishment of private schools. It behooves us to treat the questions that arise with generous candor and to remember that neither a public school nor a private school in itself has any quality of influence which can be determined by its name.

There are useful private schools. The school system of the city has its office. The graded school of the town has its work. The log schoolhouse of the woods trains men. The sod house of the prairie makes its record of the best school in a Nebraska county in 1890, and inspires confidence in the builders who preferred to use sod houses rather than bond their districts, a refreshing reminder that the school financiering of the day is not all reckless.

JAMES H. BLODGETT.

WASHINGTON, D. C.

V.

DISCUSSIONS.

THE NEW DEPARTMENT OF PEDAGOGY AT HARVARD UNIVERSITY.

The establishment of courses for the instruction of teachers at Harvard University is another recognition of the necessity for trained teachers for secondary schools, and for the higher places in the public schools generally. It is not strange that the demand for such teachers has lately become more pronounced, and that the opinions upon which it is based have been urged with greater emphasis. Experience has proved that we have failed to achieve results which could reasonably be expected from the great general interest in education and the money expended upon it. One of the causes of these inadequate achievements is found in the meager professional equipment of teachers and of influential school officers. We lack men whose professional attitude is rational and whose assumption of leadership in education is justified by a knowledge of principles. Men who, in addition to a liberal general training, possess professional culture and insight. We need more men who can and will study their work philosophically; who are fitted to be leaders because they are able to lead.

All higher schools for the training of teachers, and the establishment of departments for such training in the great educational centers, aim directly at developing such ability, so far as training can do it. In the same sense in which we can make men by education, we can make teachers. No training can, of course, make good native poverty of mind and heart. But no one doubts the effect of training upon persons capable of profiting by it. No doubt professional training of itself can never produce a finished artist. But it can and does develop a permanent professional attitude; it develops a thoughtful student of his profession and confirms that far-reaching and general interest in the study of mind and nature, of men and affairs, without which growth is impossible, and the intelligent solution of educational problems either very difficult and haphazard, or quite out of the question. Professional training

does this by making the learner distinctly conscious of his needs, his possibilities, and the means he may employ to realize his aspirations.

The study of any art naturally involves the recognition of its principles and processes. The courses offered at Harvard University, in 1891–92, to teachers, and to men who wish to become teachers, thus naturally fall into two groups. One group deals with the history and the theory of teaching, and the other group deals with management, supervision, and organization, and with the methods of teaching the several academic subjects, Greek, Latin, English, German, French, History, Mathematics (Algebra, Geometry, Trigonometry, Elementary Analytical Geometry), Physics, Chemistry, Botany, Zoölogy, Geology, Geography. The instruction in each of these courses is in charge of one or more of the instructors belonging to the corresponding department. Special requirements, designed to aid in securing the best results, are made of students taking these courses. The additional work thus required is especially determined for each course, but consists in general of prescribed attendance upon other college exercises, of conferences, of exercises suggested by the needs of the students, and of the observation of teaching in schools in the vicinity of the University, with reports of such observations. In addition to these courses, Professor William James will give twelve lectures on "Topics in Psychology of Interest to Teachers." All of these courses are "open to men who are graduates of colleges, or scientific schools, or who are otherwise known to be of suitable age and attainments, under the same conditions as those which govern admission to the graduate school."

It will be noticed that the instruction of teachers at Harvard University differs from that offered elsewhere, among other things, in the extent to which students study methods of teaching the subjects of a high school or academic course of study, and observe, under direction, the actual teaching of those subjects. The same plan will also be followed, so far as possible, in teaching methods of management, supervision, and government. The tendency to mere imitation is controlled by the courses in Psychology and the Theory of Teaching, which enable the student to realize the rational basis of the methods presented. The instruction throughout will be by lectures and discussions, with frequent opportunities for con-

ference and consultation. It is intended to adjust all details in accordance with the needs of students.

PAUL H. HANUS.

HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

THE ANNUAL MEETING OF THE ASSOCIATION OF GERMAN PHILOLOGISTS AND SCHOOLMASTERS.

The forty-first annual meeting of this distinguished and influential body of teachers was held in Munich. It was presided over by Prof. Dr. Wilhelm von Christ of the University of Munich, and Dr. Bernhard Arnold, rector of the Wilhelms gymnasium in the same city. Over six hundred eminent teachers from all parts of Germany were present.

It is of great significance, that, for the first time, a purely pedagogic, as distinguished from an academic subject, was discussed in the general meeting. Prof. Dr. Schiller, of Giessen, widely and favorably known through his suggestive writings on educational subjects, read a paper on "The Professional Preparation of the Gymnasium Teacher." He traced the history of the training of secondary teachers, and showed that, as regards three points, instructed opinion is now unanimous: the secondary teacher must receive theoretical instruction in pedagogy, he must gain a conception of a model school organization, and he must have done a certain amount of practice teaching under competent supervision and direction. Pedagogical seminaries in connection with the universities can, if conducted by men of practical experience, accomplish a great deal, if they confine themselves chiefly to carrying forward the science of education. Normal schools do not make the teaching of pedagogics at the universities unnecessary; they rather emphasize its importance. The proper attitude of the normal schools toward the three points above named, will only be determined by time and experience. Until recently, the Prussian normal schools have attempted to impart a higher culture to their pupils, as well as to give them a pedagogic theory and practice and so prepare them for their life-work. As a result, the pedagogic training came to be of less importance than the academic, and the normal school in so far failed to accomplish the purpose for which it was founded. More re-

cently, however, some of the best schools have given up this practice, and seek rather to train the future teachers so to deal with the knowledge they have acquired at the universities as to make it most available for purposes of instruction. This is difficult, and only possible when the normal school commands the services of very scholarly and competent teachers, who are able to keep pace with the progress of learning. Each normal school will then divide itself into sections where teachers of classical philology, of modern languages, of physics, etc., will be instructed in those pedagogic matters that pertain to their respective specialties. The instruction in physical training should be the same for all students, in order to hasten the time when every class teacher shall be able not only to supervise the physical training of his class, but to serve as a model of bodily health and vigor to them. A year ought to suffice to give to university graduates all the pedagogic training that is necessary. It is of great importance, in order to combat the narrowing tendencies of too great specialization, to group future teachers of the languages and of the natural sciences in the same institution. They cannot fail to have a helpful influence on each other. The normal school must deal with each one of the three points above mentioned. The theoretical instruction in pedagogics must develop the fundamental notions of psychology and ethics, and the chief events in the history of education, and apply them to the present problems of education and instruction. In this way the science of education is to be built up. Here belongs also a knowledge of school legislation and school hygiene. The students can be most easily and profitably introduced to the practical work of teaching in the lower division of the practice school, because here the problems of mere instruction are simplest.

The speaker went on to develop at some length his view of how such an institution should be conducted in all its details. He concluded by holding that the secondary teachers of Germany would never develop a "pedagogic consciousness," would never become what they should be, until such a training is general.

Despite the fact that the other sections of the meeting had attractive programmes, fully one-half of all the persons present attended the sessions of the pedagogic section. Here an important paper was read by Director Otto Jager, on "The Permanent and the Temporary in the Humanistic Gymna-

sium," in which the fact was emphasized that the gymnasium of the present day must train its pupils for actual life, and therefore the mother tongue, the other modern languages, and historical studies must be made more of in the curriculum. Prof. Hartfelder, of Heidelberg, read a paper on St. Paul's School, of London, which was full of interest. The other papers read in this section were of less importance.

Dr. Arnold, in his closing address, was loudly applauded when he said that the significant facts of this session were the important place assigned to pedagogic questions, and the interest and enthusiasm that they aroused.

The forty-second meeting of the Association will be held in Vienna in 1893.

KASPAR HAMMER.

WILHELMS GYMNASIUM,
MUNICH, GERMANY.

CITY SCHOOL SUPERVISION, I.

The preparation of an initial paper on city school supervision has been suggested to me. I am asked to omit in the presentation all administrative and financial questions and to emphasize the purely educational side of the school system. My conception of the duties of the position persuades me that such a presentation as is proposed would be one-sided and incomplete, and therefore subject to misconstruction.

Considerations of the sort contemplated require that not only the different relations arising from varied and widely separated localities should be borne well in mind, but more especially the sizes of the cities within view. Eight hundred ninety-nine cities in the United States have a population exceeding one thousand people. One hundred twenty-three have over twenty-five thousand; of these, less than twenty, not all of which claim an efficient school system, exceed one hundred fifty thousand inhabitants. Educational councils and conventions in discussing school supervision have largely given attention to the twenty great municipalities.

The peculiar conditions requiring the organization of separate departments in such large administrations make it better for the present purpose to omit, in the consideration, the great cities. The school superintendents in cities of one hundred fifty thousand, or less, have set before them quite

a different task from that before the superintendent of New York, Philadelphia, or Brooklyn. The duties pertaining to the lesser jurisdictions are the chief interest to most of us who are now in the harness.

The written laws prescribing the duties of a superintendent, although variously framed, are similar in substance. "He shall have an oversight of all public schools within the boundaries of the district, and shall perform such duties as may be prescribed by the board of education." This formula, while it covers the whole matter, inadequately presents an idea of the complexity and magnitude of the labors of the office.

Two distinct and separate classes of duties are demanded of the superintendent: one relating to the board, the other relating to the schools. Facing the one he is never to have his back to the other; he is to be director, petitioner, adviser, or servitor according to the case in hand. As the executive officer of the board, the superintendent must be conversant with all measures proposed or introduced—not only in general but also in detail. The administration of school affairs is weak, and consequently inefficient when distinct and independent lines of effort are made with no concentrated directive power. The board or its committees are not sufficient. Heating, ventilating, sewerage, seating, lighting, study hours, courses of study, and all else pertaining to the school system are so dependent, one upon the other, that one person must have intimate knowledge of the whole scheme and its execution in order to prevent waste and produce the best results. The desirable and essential components of a board are business acumen, and ability wisely to counsel, advise, and generally to direct. The executing and expert force—superintendent, teacher, and janitor—is a purchasable power with a determinable value.

The tendency of thought and study is latterly toward the science and philosophy of education; the outlook is brighter, more encouraging than at any previous time in our history. Eminent men—philosophers and investigators—are giving to us out of their best thoughts the results of careful observations and analyses. The superintendent of the city schools must keep abreast of all these progressive movements; he must be equal to reforms, revolutions, or advances. But the philosophico-theoretic view as presented by the eminent professors will not suffice in this country to establish, conduct, and main-

tain a city school system. The superintendent must consider fact as well as theory; must accept truths without undertaking in every instance to exemplify by application. Failure and disaster will continue to follow where the executive officer of the board is solely and professionally a teacher; he need not be an excellent teacher himself, if he be able to determine when another is.

The proper expenditure of property, the number, kind, and location of houses, legislation pertaining to schools, the laws and their application in sanitary construction, the interior arrangement of houses, the sentiment of the people upon which the maintenance of the schools depend, are a few of the matters that are somewhat within the scope of the superintendent's office. They cannot be separated from it without detracting from his efficiency by narrowing his outlook and weakening his grasp of the system as a whole. It is not enough that the superintendent be an educational philosopher; he would often better be less of a theorist in principles and their application, and more of a practical business man.

It will not always be as now. America is forming; the rush of enterprises, the unrest and ambitions of people, the well-meaning but harmful expressions and efforts of reformers, some of whom are menaces to the prudent and healthful progress of the community, make it impossible for the highest effectiveness promptly to follow the advice of the pedagogical philosopher alone.

Toward the educational side technical professional skill is demanded. The number of professionally studied superintendents in this country is alarmingly small. Not the pecuniary renumeration, the glory of ambition, philanthropic love, nor a desire to be and to do good has so far been sufficient to induce the necessary number of men and women to prepare for and engage in the work of school supervision. The position itself is not a widely acknowledged distinctive occupation. In time it will assume that dignity. The superintendent's office can never be exalted except as a sequel to the exaltation of the teacher, an intimate and practical knowledge of whose work is a necessity to the superintendent. He must be a fair general scholar; he must have passed through several years of technical training both as pupil and teacher: he is not to the best degree able to supervise primary, grammar, or high schools unless he has for a reasonable time served as a

teacher in these respective schools. The conditions of public education force into the superintendent's harness persons whose preparation has been inadequate, whose work has not been such as has fitted them for the duties. Men of liberal education are frequently pressed into the service of school boards, and then learn for the first time, by practice, what before they had known only in theory. A clear loss follows the early administration of such supervisors, and so, instead of having a large number of well prepared superintendents, we are compelled continually to make over material prepared for quite another and different calling in life.

The relations of the superintendent to the teacher are exceedingly delicate and difficult of management. He finds himself associated with men and women, each of superior qualifications in certain directions. They are his equals socially and intellectually; frequently his superiors. He is so to adjust the forces as to accomplish the work of the whole field in the best way. His view is of the entire situation; and often a course of conduct, right and necessary, is insisted upon quite against the judgment of his associates, whose confidence in his management is essential to success.

The little frictions and misunderstandings, such as ever arise in small and intimate communities, are to be regulated; carelessness and shiftlessness are to be upbraided; errors are to be corrected, and insubordination is promptly to be followed by dismissal. Such things, and many more, are to be accomplished when neither the power of the general of the army, nor of the overseer of the shop, can reasonably or profitably be vested in the superintendent.

He is to teach, and in no part of the work is more skill required than in properly and effectively teaching a teacher how to teach, especially one who is failing in the school, but who presents to the inspector many crude, unorganized, yet strong elements of a true teacher. To tell a teacher that the work is unsatisfactory, because the results are unsatisfactory, is easy and cheap. The schools will soon be relieved of a great mass of excellent young persons by such a line of attack. The superintendent's duties require him to help the teacher to do satisfactory work by giving intelligent and dexterous assistance. To do this requires superior knowledge on his part. At the frequent assemblages of teachers, the superintendent is so to preside as to enable each to appropriate from the other

whatever can be obtained in the way of helpful suggestions for the conduct of the classes, never concealing the relative merits of his associates, even though his own pride suffer. These meetings must be frequent, and are always helpful when properly conducted. The harm arising from interference with methods of discipline and instruction, is to be avoided by giving all possible personal latitude. Appropriate methods are too often soulless, heartless, mechanical operations. A teacher, to be in the best way successful, must not be subjected to dictation in details.

It is to and for the pupils that the superintendent's greatest force, thought, and study must be directed. All effort has but one aim, all instruments and means one object. All interests center at the children. The schools are for them. The advancement of the pupils' interests is the desideratum of all school management.

The superintendent must be able to classify so that reasonable allotments of pupils to teacher be made; to make provision for extraordinary pupils, whether of mental or physical peculiarities; to avoid inflexible laws, to modify rules, to allay prejudice, to forgive offenses, to advise whipping, to expel pupils, to cultivate morality, to form character, to retain boys in school when they would rather go to work, and to make the children happy. The superintendent of a system of schools should be the publicly acknowledged friend, often the confidant and private counselor, of the young people. He ought to be a welcome visitor at home and at school. He must be able to talk with pupils of every grade, placing himself on their plane of thought and impulse. He ought to be a father; thereby, from an intimate knowledge of his own children's life, be the better able to approach and advise the children of other people.

Looking toward teacher and pupil, one sees beyond, in the same direction, the parents and people. Each individual in the community understands that his is the right to inquire into the conduct and suggest as to the management of the school. Dictation, advice, complaint, and approbation are lavishly contributed. The superintendent is the appointed person to receive these tenders. He must listen courteously, appropriate the helpful suggestions, redress grievances, mollify complaints, and be comforted by approbation, but not disheartened by blame.

He stands as the representative of the board in the conduct of the schools before the people. In this line of his duties, requirements not heretofore mentioned are demanded: A knowledge of humanity, not acquired from books, but from men; a true notion of business and of family relations; an appreciation of home in its thousand forms and conditions; of paternal and maternal discipline in its various degrees; of the loves and hates of neighbors; of the breeding and antecedents of parents—in fact, a knowledge of all that goes to make up one peculiar American social neighborhood is needed by the superintendent, that he may properly and successfully administer and adjust such matters connected with school life as are daily brought before him. It is important that he so adjudicate that appeals from his decision be seldom, that the board be not often annoyed by called meetings for the purpose of reopening cases of alleged grievances upon which judgment has already been pronounced. This latter class of duties demands strength of manhood as the busy world makes manhood, and calls for an activity of a sort that cannot be found in him whose life has been a purely literary one, spent among books, alone in the library. A quarrel prevented by the tact or foresight of the superintendent may save the entire system from an overturning that long time only could right.

AARON GOVE.

SUPERINTENDENT OF SCHOOLS,
DENVER, COLO.

PRACTICE TEACHING IN NORMAL SCHOOLS, I.

A practice school is to a normal school what a hospital is to a medical school. It is a place for verifying and illustrating principles. It is an opportunity to reduce theory to practice. The theoretical side of education is never fully understood till it is supplemented by the practical side. Beginners in education, like beginners everywhere else, need to see the truth at first in the concrete. A principle of teaching or of discipline has a new meaning when seen in its application.

Then, too, the novice never knows what children really are, till he sees live children in action. The sympathy of numbers, the contagion of intellectual activity, the power of example,

the force of public opinion, these and similar factors in a working school must be learned in the school itself. The reciprocal influence of speech and action upon pupil and teacher are manifested only in the school.

Power and skill in teaching and governing are developed by teaching and governing. Hence the need of opportunity to practice. Of course, practice can follow the theoretical instruction of the normal school, but the development of skill is more rapid if practice is done under the direction of experts. The acquisition of skill is less expensive to the children if skill is gained in the practice school. Here blunders are detected at once by the practice teachers, and they may be at once avoided. When the young teacher begins work on his own account, he has no eyes but his own with which to observe himself, and so it happens that many of his worst faults remain undetected and uncorrected for years.

I should put these, then, as the three principal uses of a practice school: 1. To make clear the principles of education taught in the normal school. 2. To make known the nature of the child, especially in his social relations; and 3. To develop power and skill in teaching and governing. The organization of a practice school in connection with a normal school is a difficult matter, because the circumstances of almost every normal school differ from those of all others.

As a result of nineteen years' experience in a city normal school, and a training school attached, I have arrived at the following conclusions as to the proper organization of a practice department under the conditions by which I am surrounded:

1. The arrangement of classes in the practice school should be the same as it is for the grammar and primary schools of the city where it is located; and, if there are public kindergartens in the city, the practice school should include at least one kindergarten class. This will give the normal students an opportunity to observe all grades of elementary instruction.

2. The course of study should be the same as in the other elementary schools of the city. Some liberty of variation for the sake of experiment should be allowed in the practice school; but in the main the work should be such as the normal pupils will be required to do when they come to have schools of their own.

3. The teaching force in the practice school should be the same as in other schools of corresponding grades. There should be a principal who is held responsible for the discipline and advancement of the pupils, and at least as many assistants as would be found in other schools of similar grades. The teaching should not be left to the normal pupils exclusively. There must be much teaching by novices; so the children should be protected and guided by a full corps of the best of teachers.

4. The principal of the normal school should have the direction of the observation and practice of the normal pupils, as well as of the methods of instruction employed in the practice school. This is essential to securing harmony of theory and practice in the training of the normal students. Of course the principal of the practice school must be in harmony with the head of the normal school in all important points; but whenever the two disagree, the principal of the normal school must direct the work of the practice school.

5. The teachers in the normal school should perform such service in the practice school as the principal of the normal school may direct. It is important that teachers of theory should be required, at times, to reduce their theories to practice. Then, too, the best way of directing methods is often by example.

6. The practice school, thus organized, should be used at first as a school of observation. Whenever the methods of teaching any subject, reading for example, are under consideration in the normal school, the normal pupils should be taken to the practice school for a practical demonstration of what they are studying. While this work of observation is going on, the normal pupils should be required to teach their classmates enough to give them some idea of the orderly presentation of subjects, and of the proper sequence of questions in teaching.

7. Later on, the normal students should be required to take charge of the classes in the practice school. This, for a long time, should be done under the immediate direction, supervision, and criticism of the teachers of the practice school. The practice teachers should be responsible for the proper planning and preparation of lessons to be given by the normal student, as well as for the general order of the classes. They should freely criticise, advise, and encourage. Practice

work by the normal pupils should be so arranged that only one normal student will be in a room at a time; and she should remain for several successive weeks. Thus no more normal pupils can be trained in the practice school at the same time than there are classes in the practice school.

8. The practice school, as already described, should be supplemented by teachers in various parts of the city, selected for their theoretical knowledge of education and practical skill in teaching and governing. The classes under the charge of these teachers should be used for purposes of practice the same as the classes in the practice school itself. These teachers should be as many as are needed, together with the regular practice teachers, to accommodate one-half of the students in the normal school. By this means the poor work of novices will not fall heavily upon the pupils in the regular classes of the practice school.

9. All the practice teachers, both those in the practice school and those outside, should meet the principal of the normal school from time to time for purposes of consultation and instruction in regard to their work with the normal students. Without such conferences the normal students lose much time, and the practice teachers work at a disadvantage.

A well organized practice, or training school, and a well selected corps of practice, or training teachers are, in my opinion, a necessary adjunct of a normal school in a large city.

LARKIN DUNTON.

NORMAL SCHOOL,
BOSTON, MASS.

THE USE OF CLAY IN SCHOOLS.

The evolution of methods of teaching is a curious and interesting subject of study. Take, for example, form study, and drawing, as the subject is now taught in every school that makes any pretense of keeping up with educational progress. It is only five or six years since the study of the facts of form, and the representation of form through the medium of pencil and paper, were generally blended in school work. Now, any teacher who would insist on separating them would be regarded with the same wonder with which we look upon the implements of a troglodyte. We are surprised at the stupidity that

kept the two branches of the same study so far apart. And yet, stupidity is not the term to use. The teachers who did their best to give "observation lessons" on the cube or the cylinder, from a single object held in view of the class, or even from a chart or a rude blackboard drawing, were faithfully teaching according to the light then afforded them, or with the only material placed at their disposal. And, in like manner, the teacher who conscientiously taught her pupils to reproduce the flat copies in a drawing-book is not to be condemned because she followed, according to her ability, the instructions of those who ought to have known better.

Gradually it has been dawning upon the minds of educators that, desirable as it is to develop the perceptive powers of children, it is extremely difficult, if not impossible, to cultivate observation as an end in itself. Observation in practice is always a means to the formation of ideas. Ideas are shadowy and evanescent until they find appropriate expression. It is the expression that lends not only strength, but interest, to their development. Hence expression is the end to be sought. Observation assumes its natural place when it is regarded as one of the means by which this end is to be achieved.

If we leave language out of consideration for a moment, the facts of form may be expressed in two ways—either by making, as modeling in clay or cutting and folding paper, or by drawing, as with the pencil, the pen, or the brush. Which method should come first? Expression by the pencil, without any intermediate step, has had a fair trial. "Model and object drawing" was the next step in the evolution of method after copying from the flat had been tried and found wanting. Object drawing, in the case of very young children, if practiced before the facts of form are learned through expression by making, does not produce good results. Nor could it be expected that it would. The reason is not difficult to find. The picture of a cube, for instance, no matter how well drawn it may be, is wholly unlike the original. That expanse of white or tinted paper, those few gray lines, bear no resemblance whatever to the wooden or metallic mass. They are not a cube; they are not like a cube; they merely suggest a cube to a mind that is conversant with its form. To place lines on paper in such a way as to suggest a cube, or any other mass, requires, in the first place, thorough knowledge of the object;

in the second place, considerable power of abstraction to detach the outline from the mass; and, in the third place, skill in representing the abstraction on paper. On the other hand, modeling in clay requires no effort at abstraction. It is simply the exact reproduction of a similar form in another and easily molded material. This reproduction necessitates exact observation, supplies accurate knowledge, trains the eye to see and measure, and the hand to execute, and thus prepares the mind for the effort of abstraction required in the pictorial art. Roughly speaking, then, we may mark off three steps in "form study and drawing," to which we have been slowly brought by the evolution of method: first, observation; second, making—clay and paper being the materials; third; drawing in all its forms.

As I have said, the combination of form study and drawing has taken deep and lasting root wherever there is a progressive spirit. But, like every other reform, this one has met and meets with serious opposition. The *vis inertiæ* of the unprogressive teacher may be always counted on as a strong force against which to contend; while public opinion is slow, though certain in the end, to rally to the support of improvement in educational work. In this case, attempts, well meant in some instances, mischievous in others, have been made to rouse public opinion against the reform. It was not enough to denounce "form study and drawing" as play, as an "ornamental branch," as an "educational fringe," whatever that is, but in many places where modeling in clay has been introduced in the public schools, the cry has been raised that it is a means of conveying contagious disease from one pupil to another. It is boldly claimed that the germs of measles, scarlet fever, and the other diseases to which children are heir, are conveyed in the clay that the children handle in school. When it is objected that this cannot be the case, because children suffering from such diseases are invariably excluded from school until all danger of contagion is past, the ground of attack is shifted, and we are told that, at any rate, skin disease, if such exist, is certain to be carried. To such an extent did opposition of this kind proceed in the city of Brooklyn, that recently the Board of Education ordered an investigation to be made. The evidence produced at this investigation is of interest, and may be of value, to other places in which similar controversies arise.

The committee to whom the investigation was intrusted desired to ascertain the experience of other large cities. For this purpose a circular letter containing a number of questions was prepared and addressed to superintendents, supervisors of drawing, and others in authority in the cities in which clay is now used. The list of cities included Chicago, St. Louis, Minneapolis, St. Paul, Indianapolis, Detroit, Denver, Newark, Washington, Boston, Brookline, Providence, Springfield, Mass.; Syracuse, Rochester, Alleghany City, Milwaukee, Hartford, Worcester, and a number of smaller places. The number of answers obtained was fifty-four, and as these emanated from the more important educational centers, it is not too much to say that the body of evidence thus brought forward settles the question and puts out of court those who raised the cry against modeling in clay.

The first question was: "Have you known of skin diseases being spread by the use of clay in the schoolroom in connection with teaching form study and drawing?" Of 54 answers, 50 were "No"; 2 were "Never"; 1 was "None whatever," and 1 was "No, never heard of such a thing."

The second question was: "Have you any knowledge of contagious diseases being spread by the use of clay in public schools?" The answers were: "No," 43; "Never," 10; "Used several years, never had a complaint," 1.

The third question was: "From your own experience or knowledge of that of others', have you ever known of any injurious effects to pupils, from the general use of clay in the schoolroom, as an aid and means in form study and drawing?" The answers were as follows: 39, "No"; 1, "Never in twenty years' use"; 1, "Never in seven years' use"; 2, "Never in five years' use;" 9, "Never"; 1, "Occasionally heard of chapped hands, when used in cold weather. Believe it might be avoided;" 1, "Heard of slight skin irritation which was only temporary."

In answer to the fourth question, which called for any general remarks the person addressed might desire to make, replies were obtained that show how deep-rooted among the educational minds of the country is the conviction that modeling in clay is not only the best means of teaching form, but the best introduction to drawing. I have space for only a few of these replies.

Superintendent Howland, of Chicago, says: "It (clay) is

the best material for teaching form; cheap and perfectly safe."

E. J. Dimmock, Supervisor of Drawing in the Chicago schools, says: "Chicago teachers would not do without it (clay). Its worst opponents at first are now its best advocates. Used it six years. Have no trouble."

Colonel Francis W. Parker, of the Cook County Normal School, says: "Used clay twenty years. No injurious effects, except in the *minds* of persons who cling to 'readin,' 'ritin', and 'rithmetic.'

"Clay is the best material extant for the expression of the crude concepts of children.

"We had the same hue and cry raised in Chicago. I referred it to the Chief of the Health Bureau, who had an expert chemist analyze specimens of clay that had been used, and decided that there was nothing in it."

T. E. Riley, Supervisor of Drawing in St. Louis, says: "Clay is the best material for use in the schoolroom, as it furnishes the best means of developing and expressing ideas of form. It is plastic, cheap, and easily obtained.

"In several years' experience I have not known, nor learned from the experience of others, of any injurious effects from the use of clay in the schoolroom. Am told clay is quite extensively used as a surgical dressing, on account of its antiseptic qualities."

T. J. Richardson, Supervisor of Drawing in Minneapolis, says: "Have used clay for five years in public schools. Never heard of any injurious effects."

A. M. Laughlin, Supervisor of Drawing in St. Paul, says: "Used clay with a good many thousand children for the past nine years. From my own experience, or that of others, have never known injurious effects."

J. H. Brown, Supervisor of Drawing in Indianapolis, says: "Used ten years. Never any trouble with it."

Myra Jones, Supervisor of Drawing in Detroit, says: "Used several years. No complaints, directly or indirectly."

Charles M. Carter, Supervisor of Drawing in Denver, says: "Used several years. Can remember but one complaint. Never observed any bad results."

S. A. Fawcett, Supervisor of Drawing in Newark, N. J., says: "Clay, properly cared for, cannot be dangerous. It cleanses itself, is, in fact, a cleansing agent. . . . . I have seen the

worst boys made orderly and quiet, and have never known its use to be abused."

I. Edwards Clarke, of the National Bureau of Education, Washington, D. C., writes: "No knowledge of any injurious effects being produced by use of clay in schools has ever come to me, which, as I have been for some years busied upon special reports relating to all phases of the industrial art education movements in America and Europe, is remarkable, if such effects have been at all general.

"Questions of ventilation, of drainage, of cleanliness, as affecting the health of children in crowded schoolrooms are, in my judgment, of real importance, while the idea that there is danger in the use of clay for modeling seems very fanciful and far-fetched."

Henry T. Bailey, State Agent for the Promotion of Art Education in Massachusetts, says: "No injurious effects from the general use of clay have ever come to my notice.

"It is a valuable means to teach form, to train pupils to be observant, to think connectedly and independently, and to give skill of hand.

"Clay is always considered injurious by lazy, ignorant, or 'self-trained' and unteachable school-keepers. I never knew a *teacher* who discovered objections to its use."

Superintendent Balliet, of Springfield, Mass., says: "The impression that contagious diseases may be spread or communicated through clay modeling is certainly not based on facts. It must be purely a theoretical objection. It is in my judgment impossible to do good work in form study and drawing without clay modeling."

Mrs. H. J. Carter, Professor of Form Study and Drawing in the New York College for the Training of Teachers, says: "I cannot feel that, with proper caution, there is any more danger to children in the handling of clay than in any other school material. Never heard of any injurious effects."

L. A. Adams, Supervisor of Drawing in Syracuse, N. Y., says: "Never any injurious effects to pupils in the schools of Syracuse. Its use, at the beginning, five years ago, met with some opposition, as was to be expected, both teachers and pupils being ignorant of the use and effect of clay modeling. It has long since ceased to be a mooted subject, and those who may have opposed its use are now among its advocates."

Henry Hitchings, Supervisor of Drawing, Boston, Mass.,

says: "Never knew of any injurious results from the use of clay in our schools."

Walter S. Perry, Director of the Art Department of Pratt Institute, Brooklyn, says: "With no other material can students get as quickly a complete knowledge of the form studied. It can be used for the expression of thought at an age when drawing would be too difficult for the child to master. . . . . I never knew any skin or contagious diseases to be spread by it, or any injurious effects resulting from its use."

At a meeting of the Department of Drawing, Association of Educational Workers, held at the Massachusetts Normal Art School, Boston, on June 15, 1891, the following resolution was unanimously adopted: "*Resolved*, that this association indorses the use of clay in public schools, and takes this opportunity to state that no disease resulting therefrom has come to the notice of this association."

Supported by such a "cloud of witnesses" as is here brought forward, the advocates of clay modeling can well afford to rest their case.

WILLIAM H. MAXWELL.

BROOKLYN, N. Y.

THE SCIENCE VERSUS THE ART OF TEACHING.

Professor Royce closes his admirable and scholarly article on "Is there a Science of Education?" by the somewhat unique statement[1]: "To sum it all up in one word: Teaching is an art. Therefore there is indeed no science of education." Although the major premise of his syllogism is wanting it can be inferred easily from the general trend of his preceding argument. If he means to say: Teaching is an art, no art is a science, therefore there is no science of education, the fallacy lies in the assumption that teaching is an art *merely*. Surely Professor Royce will not deny that education as well as logic may be both a science and an art. The distinction between these terms is, after all, as Mr. Mill has stated,[2] a merely verbal one. To insist that pedagogy can never become a science because many of its generalizations cannot be "universally valid," would rule out of the category of sciences nearly all, in fact, but mathematics. But this science, too, has its applied, or art,

[1] EDUCATIONAL REVIEW, I., 132. [2] *Edinburgh Review*, No. 115.

side. Or, furthermore, if the term science is to be restricted to such departments of knowledge as have been quite fully investigated; then, too, several so-called sciences have been misnamed.

Professor Dilthey addressed himself to the question of the "Possibility of a *universally valid* pedagogical science," and the result of his inquiry, if negative, would hardly warrant the striking out of pedagogy from the category of "progressive sciences," which, to quote Professor Royce, are being constantly "modified by the course of evolution and by the actual social environment."

That the terms science and art are not mutually contradictory when affirmed of the same subject, I may quote from Plato:[3] "The art and science of making shoes." I may cite also Whately's definition of logic, approved by Mr. Mill,[4] which is "the science as well as the art of reasoning."

It would not be worth our while to traverse this issue had not the closing sentences of Professor Royce's article conveyed the impression that there was left no further room for argument. One had, therefore, to conclude that such works as Bain's *Education as a Science* and Rozenkranz's *Pädagogik als System* were wrongly named.

It is certainly a great satisfaction to many of us, who are struggling along on the art side of teaching, to believe that there is a correlative science of education which will finally be worked out and formulated for us by such scholarly and philosophic minds as that of the distinguished Harvard professor. At any rate we beg to be permitted, as long as we may, to use, without reproach, the convenient and dignified description, the "science of education."

It may be said also, in passing, that no more valuable contribution to educational science has appeared in late years than the very article by Professor Royce to which allusion has already been made. I believe, however, with Professor Royce, that for some time to come the most fruitful lines of investigation and of progress will be along the development of the art side of education.

Lord Bacon has defined art to be "a proper disposal of the things of nature by human thought and experience, so as to make them answer the designs and uses of mankind." It is, accordingly, as a means to an end rather than for the

[3] *Theætetus*, 147. [4] *System of Logic*, p. 18.

purely scientific value of our conclusions, that the unsettled problems of education should be investigated at the present day. The study of practical psychology, or "mental diagnosis," as Professor Royce so happily terms it, cannot be too strongly recommended. Theoretical psychology, as studied in the average High or Normal school, has been too often both barren and unprofitable, except, perhaps, as an intellectual gymnastic. Its discussions have, as a rule, been too far removed from the actual life and work of the teacher to serve as an important guide, either in aims or method, for the school-room. True, theoretical psychology has aimed to furnish teachers with certain guiding principles of a proper teaching method: but when the attempt has been consciously made by the young teacher to apply these principles in order to deduce practical working rules, difficulty has been encountered.

This difficulty in applying psychological theory has been due not alone to the inability on the part of the average teacher to comprehend the principles in their full content, but to a more fundamental reason; namely, that the psychological method, so-called, is not identical with the teaching, or pedagogical method, and must undergo in practice considerable modification. The latter involves certain factors not contained in nor considered by the former. The psychological method gives the natural sequence of mental acquisition, assimilation, and growth. It stops here. The pedagogical method goes further than this, and takes cognizance of the ends and means of education. It deals also with the subject matter of instruction; it considers the relative value of the different kinds of discipline and of knowledge, together with the conditions of social environment. Hence, to confine the study of scientific pedagogy mainly to an investigation of child life, as recommended by Professor Royce, will be far from answering the demands of the practical teacher. In fact, what the average teacher of limited knowledge and training most needs for her immediate guidance is not more psychology, theoretical or practical, nor, indeed, more "science" of any kind, but precisely formulated maxims, deduced from scientific principles, that will aid in the accomplishment of specific and clearly conceived ends. Let science be cultivated rather by those, like Professor Royce, who have the capacity and are the natural leaders; let the torch of science be held high to illumine the teacher's pathway, but let us not forget that the *common* teacher like the

common soldier, cannot act on general orders, but must have direct and specific instructions in order to accomplish definite ends.

The prevailing criticism upon our schools, such for instance as that made recently by President Eliot, alleges that the average results (ends) of our best schools are comparatively slight and of small worth. The fact that the teacher does not understand the child is doubtless to some extent responsible for poor results, but only partially; one of the chief difficulties is, as we have said, the deplorable ignorance of what is and what is not *worth* teaching. That is, we need to study the objective side as well as the subjective side of education, or the relative values of studies in view of the future needs of the pupil as well as the processes and laws of mental growth, *i. e.*, psychology. It would be a mistake, therefore, to establish in our colleges and universities chairs for the teaching of psychology and theoretical pedagogy, solely.

Instruction in applied pedagogy, looking to the formulation of precise and practical maxims, having a scientific basis and school-room application, is very much needed. What to teach of mathematics, history, etc., and how to teach for clearly defined ends are and must continue to be the most vital and important questions for pedagogical study. Hence, it is no exaggeration to affirm, with Spencer, that the chief need of our schools is some standard by which to measure educational values. This is a department of study and research that has been too much neglected. It is not sufficient to know, in a general way, that some studies, say for instance elementary arithmetic or language, have a practical value; while history and geography have a culture value mainly. This is not enough.

The distinction is an important one. Teachers should know the comparative values of studies and that, too, not as wholes merely, but of specific topics and classes of facts, how and to what extent valuable either as discipline or information. When President Eliot stood before a body of school-men such as greeted him last year at Worcester, and affirmed his conviction that it was a waste of time to teach the capitals and boundaries of the States of the Union, he was applauded. How could it be otherwise? Everybody admits that a great deal of useless rubbish is taught in all our schools. And what is the remedy? Surely no general condemnation of the

practice has yet been adequate to stop it, so strong is the power of habit and tradition. The remedy must be found, if at all, in a better appreciation on the part of teachers of the relative values of subject matter for its practical, disciplinary, or culture ends. As a rule no effort is made in our elementary and higher schools to grade information according to any standard of relative values. All the topics of arithmetic, of history, and of geography are taught by most teachers as of equal or nearly equal importance. As a proof of this, witness the kind of questions generally called for upon examinations in our best schools and colleges; consider also the specific values attached to questions of various sorts. The absence of any just standard for determining relative values will be apparent everywhere.

This leads to the statement that when the broad distinction is made between studies that have a culture value mainly, and those that have a practical value merely, a sharply defined difference of method should be adopted in teaching. For example: whatever is needed for the uses of daily living should be so well and thoroughly learned that the processes, mental or physiological, should become automatic. We learn to walk, to move the arms and hands, to articulate, etc., so as to perform the normal acts automatically and without conscious effort. So the mental and physical processes of reading, and largely of writing, and of combining small numbers, etc. By frequent repetition all these acts become thoroughly mechanized, and the wise teacher will see to it that her instruction reaches the point where useful acts become fixed and invariable habits. The mistake is made when history and geography, which are essentially culture studies, are taught with the same end in view, to wit, the absolute fixing of this information by frequent repetition, so that it is reproduced with ease and certainty.

It was Voltaire, I believe, who said facetiously that all the geography a girl needed to know was "how to find the northeast bedroom," and all the chemistry, "how to make a kettle boil." We may be willing to extend Voltaires's categories of necessary information, but to treat all facts as of equal, or of anything like equal value, and to seek to reduce them to the automatic memory is the most common error in teaching. It exhibits a failure to estimate either the true ends of teaching or the relative values of different kinds of knowledge.

In general the method to be pursued in teaching practical studies, as distinguished from culture studies, may be broadly described as follows: the principle of the former should be that of repetition until certainty of automatic reproduction is secured. In all operations with the small numbers, in reading, spelling, etc., the end should be absolute memorizing—no half-way results; in other words, to mechanize the processes so completely as to relieve the mind from all conscious effort. Perfect and absolute memorization then, is the rule for practical studies.

But in culture studies, not so. Here the principle is that of unconscious absorption. For illustration: one may read a story by Scott or Dickens and unconsciously absorb the whole plot and development, and be profoundly and permanently impressed thereby, while having made no conscious effort to memorize any part of it. So all culture studies that have in view the enlargement of the intellectual horizon, the development of the sensibility, and the guidance and control of the will, should be studied upon the absorptive principle and never by forced memorizing, as though they were practical studies.

The carrying out of this principle would modify the teaching of geography, of history, and of literature to a remarkable extent. Instead of making the immediate end of such study the power to reproduce from memory certain facts, the aim should be rather to secure such a reaction upon the mind of the pupil as would enlarge the mental perspective, broaden the sympathies, strengthen the will, exalt the sentiments, and in general, conduce to the development of intelligence and character.

ADDISON B. POLAND.

JERSEY CITY, N. J.

VI.

EDITORIAL.

The argument of President Walker in regard to the education furnished by the American scientific schools, which appears in this issue of the EDUCATIONAL REVIEW, made up the major portion of his eloquent and striking address at the University Convocation at Albany. To graduates of literary colleges, and to teachers in those institutions, President Walker's conclusions may at first sight seem very radical, but it will be found a task of great difficulty to controvert them. It is hard for those accustomed to another order of things to understand that a deepening and widening civilization has altered the content of education—or better, has broadened it—while retaining its form. The objects and ideals of intellectual and moral culture are the same that they have always been since systematic education began. But the path to this goal is no longer a single or a narrow one. Science, as well as letters, history as well as philosophy, can afford that mental discipline and culture that the world prizes so highly.

It is not impossible, however, that President Walker has too constantly in mind the admirable institution over which he himself presides, in making his generalizations. Even the school of science or technology needs in its curriculum some instruction in the English language and literature, in history and in economics. The Massachusetts Institute of Technology furnishes this; but the same cannot be said of many other schools of similar character. The fault of the technically trained man in this country too often is that he knows nothing but his technique. His intellectual sympathies are narrow and his vision limited. It is of the essence of the old humanities to guard against these faults, and for that reason literary and historical studies should have some representation in every scientific or technical course of study.

After considerable delay, the managers of the World's Columbian Exposition have appointed a director of the de-

partment of liberal arts, which, in the classification adopted, includes education. It is highly creditable to the intelligence and good judgment of Director-General Davis that his nominees should have been such competent and representative men as President Daniel C. Gilman, Professor Herbert B. Adams, and Dr. Selim H. Peabody. Neither President Gilman nor Professor Adams felt able to accept the position, and while their decisions were greatly regretted, the acceptance of the place by Dr. Peabody renders it certain that education will occupy a dignified and important place at the World's Fair. Dr. Peabody has just retired from the presidency of the University of Illinois, and will, it is understood, be able to devote his whole time to the organization of the department of liberal arts.

On March 28 next occurs the three hundredth anniversary of the birth of John Amos Comenius, one of the greatest and most practical educational leaders of all time. In Germany elaborate preparations are making for the celebration of the event. A similar movement has been organized in this country, and appropriate exercises will be held at Columbia College, in March next, under the auspices of the department of philosophy and education in that institution. The committee having the matter in charge are: Dr. William T. Harris, Commissioner of Education; Professor Herbert B. Adams, of Johns Hopkins University; Professor Paul H. Hanus, of Harvard University; C. W. Bardeen, of Syracuse, N. Y.; Rev. Edward Rondthaler, of Salem, N. C.; and Rev. Robert de Schweinitz, of Bethlehem, Pa.; together with the professor of philosophy in Columbia College.

It may fairly be doubted whether three more successful educational meetings were ever held than those of the American Institute of Instruction, the New York University Convocation, and the National Educational Association in July last. The attendance at each was very large, and the tone of the papers and discussions was healthier and more serious than usual. As was quite generally predicted, the experiment of holding Round Table Conferences of specialists in connection with the general meeting at Toronto was very successful. They are to be introduced hereafter at the meetings of the

Department of Superintendence and the American Institute of Instruction. The most obvious criticism on the Albany meeting is that too many subjects were placed on the programme, and the rules as to five and ten minute speeches, which were so frequently and emphatically announced, were not enforced until late in the meeting. In 1892 neither of these criticisms should be possible. At Toronto the generous hospitality of the Canadians made everything run happily and smoothly, and the social side of the meeting was unusually pleasant and helpful. To Minister Ross, and his deputy, Mr. Millar; to Principal Kirkland; and above all to the tireless energy and unfailing thoughtfulness of Inspector Hughes, the National Association owes a lasting debt of gratitude.

A new and very important step was taken at Toronto at the first meeting of the new Board of Directors of the National Association. A resolution was introduced, and unanimously carried, authorizing and directing the President to appoint a committee of three to consider and report a plan by which some portion of the annual income of the Association may hereafter be devoted to encouraging and rewarding original investigation and research in the field of education. The committee as appointed, consists of Nicholas Murray Butler of New Jersey, William T. Harris of the District of Columbia, and James H. Baker of Colorado.

The opinion was strongly expressed at Toronto that the time has come when the Association should assume the responsibilities attached to its great size and importance. The mere reading of papers and holding debates is not enough. The Association should assume the responsible leadership which belongs to it and become the patron of pedagogical scholarship. The Association stands not for the lower or the higher education, but for united education. Its broad view takes in the whole series of institutions from the kindergarten to the university, and it esteems the one as highly as the other. It can and should do for American education what the Institute of France and the Royal Society do for literature and science in their respective countries.

Signs multiply that education is exciting greater interest and attracting more attention among the public at large than

was formerly the case. One evidence of this is to be found in the fact that periodicals of general, not special, circulation, and of a popular character, find it worth while to devote special and intelligent attention to educational thought and progress. One great weekly paper, *The Christian Union*, has lately undertaken to furnish a general review, once in each month, of the educational movement at home and abroad. Another, *The Independent*, has recently given over the greater part of an entire issue to educational papers of pith and power. Events like these signify something, and the teacher may well be pardoned for feeling that the eyes of the public are upon him and his work. This of itself is a stimulus to higher ideals and renewed efforts.

A truly remarkable admission with regard to the work of the Boston schools is made by Superintendent Seaver in his last annual report. Mr. Seaver tells us that the instruction in Elementary Science which has formed, for the past nine years, part of the course of study in the schools under his charge, has been, and is, except in a comparatively few cases, practically a failure. His own words are: "The important matter to which we all need to turn our thoughts is how shall the studies classed under 'observation lessons' and 'elementary science' be promoted in our schools. For it must needs be said that whatever may be the excellences of our schools in other respects, they are in respect to these nature-studies gravely deficient both in method and in results. The late Miss Crocker, after years of most painstaking and faithful labor to promote these studies, patiently instructing the willing teachers in the best methods, and seeking to inspire the indifferent or unwilling with an interest in the matter—after all this, was unable to point out more than a very few teachers who were doing satisfactory work, while the majority were making no attempts whatever. There has been, so far as I can learn, but little improvement since. The normal school has never influenced its pupils in a way to interest them much in natural science. The so-called "teachers' school of science" has given interesting instruction in natural science to the teachers who chose to attend; but little of that instruction has been directly helpful to these teachers in their schoolroom work. And so it remains a fact that the sciences—

particularly the natural history sciences—have very little lodgment in our current school work, notwithstanding the appropriation of time made for them in the course of study for some years past. And this statement must be made more than a generation after the great Agassiz began his work of promoting an interest in the study of natural history among all people, all schools, and all teachers!"

It is much to be regretted that Superintendent Seaver does not assign the cause for this truly deplorable condition of affairs. The only remedy he suggests, in addition to exhorting teachers and pupils to collect specimens—zoölogical, mineralogical, and botanical—is that "a moderate sum of money be appropriated each year for the purpose of supplying the grammar and primary schools with suitable material for natural history lessons."

Superintendent Seaver's candor is worthy of all commendation. If all superintendents and all presidents of boards of education would state the exact truth about their schools, as he has done, school work would make much more rapid progress than it is now doing. For paralyzing effort, for dampening enthusiasm, for clogging the wheels of reform, there is no other single influence equal to the report of a superintendent or a board president who does nothing but sing the praises of his schools.

For half a century the Boston public schools have borne the reputation of being among the best in the country. There is nothing in Mr. Seaver's admission that need detract from that reputation. If the truth were told, his words would be even more applicable to every other large city whose course of study embraces elementary science. A very few teachers do the work admirably; the great majority are "making no attempts whatsoever." Probably Mr. MacAlister was right, when, as superintendent of the Philadelphia schools, he declined to recommend elementary science as part of the course, on the ground that the teachers were, as a rule, so ignorant of the subject as to be unable to give the lessons with any degree of effectiveness. And does not this furnish a clew to the cause of the comparative failure of the teaching of elementary science? Is it not to be found in the lack of knowledge on the part of the average teacher with regard to the subjects taught?

No man is competent to write a primer on any subject who is not master of the whole. And in like manner no one is competent to give a series of observation lessons on plants, let us say, who has not an extensive scientific knowledge of botany. For the lack of scientific knowledge, and the lack of skill in imparting such knowledge, the high schools are very largely responsible. As a rule, the high school course provides the merest smattering in each of the natural sciences, and imparts a thorough knowledge of no one science. In many high schools, moreover, the plan of teaching science is simply the memorizing of a text-book without laboratory work for the pupils; or at best, lectures with experiments made by the lecturer. Thus the teachers come to their work in the class-room without sufficient knowledge and with methods vitiated by bad examples. Under these circumstances it is not surprising that the teaching of elementary science in public schools should be a comparative failure.

The entire blame, however, should not be laid upon the unfortunate teacher, who in most cases does the best she can under the conditions. These conditions are often very unfavorable. The board of education gives her a course of study that it is next to impossible to execute, while it fails to supply the material with which she should work. There is a magnificent opportunity for some one with the requisite knowledge and the requisite skill to work out a course in elementary science, such as has been made for form study and drawing, that will exercise children's hands as well as their eyes; that will train the executive, as well as the perceptive powers.

During the session of Parliament which ended in August, the "Elementary Education Act, 1891," as it is to be called, passed both Houses, received the royal assent, and became a law. The full text of the Act, as it received the Royal Assent, is printed elsewhere in this issue. Its political effect is not yet certain, although it was unquestionably formulated and passed by a Conservative government in the hope of gaining political strength at the ensuing general election. Its educational effect is foreshadowed by the attitude toward it

of the managers of the voluntary or denominational schools. They saw in the bill a distinct step toward free, public, secular education, and those of them who saw that its passage was inevitable, struggled hard to conserve, as far as possible, their own interests. In this they were unquestionably successful, and no immediate danger hangs over them. It is, however, not difficult to foresee that when the Liberal party regains power, a strong and probably successful demand will be made for legislation that will put the expenditure of the public funds devoted to education in the hands, not of committees chosen by bodies of subscribers, or of church members, but of representatives chosen by the ratepayers. When this stage is reached, the crisis in England's educational history will have arrived. The country must then decide whether its permanent policy will be the assistance of voluntary effort in elementary education, supplemented by free secular schools, where voluntary effort fails or is insufficient; or the erection upon new administrative lines of a school system similar to that of the United States, which discourages or forbids the expenditure of public funds by other than public officials.

After long discussion and patient waiting a plan has been adopted and will be carried into effect, for the establishment of a Teaching University for London. This greatest of capitals has never been a university city, and its many and various institutions for the higher education have been independent, and in some measure competitive, organizations. The titular university of London, which is now in existence, is an examining and degree-conferring body, like the University of the State of New York. The Senate and Convocation of the existing university have behaved rather churlishly, as it seems at this distance, in regard to the new movement.

They should have given their name and whatever prestige they possess to it. On the contrary, they have not only obstructed it in every possible way, but have protested, it seems successfully, against the use of the name London in the official designation of the new institution. This is so ridiculous and illogical, that one is surprised to find it allowed even by so steadfast a champion of vested rights as Her Majesty's Privy Council. The teaching university, then, is to find a new name for itself and one in which the word London does not appear. It is to

be formed by a federation of Kings and University Colleges, and the several medical and scientific schools and institutions now in existence. It will from the outset represent no inconsiderable amount of wealth and dignity, but it enters upon its pedagogic career as an unknown quantity. If its success is commensurate with its opportunities, it will eventually rank with the great city universities of Berlin, Paris, and Munich.

The EDUCATIONAL REVIEW begins in this issue the discussion of two subjects of practical importance at this time: the function and character of city school supervision, and the scope and usefulness of practice teaching in normal and training schools. Both subjects appeal directly to the interest of thousands of teachers, and both need the light of a fuller and richer experience thrown upon them. The discussions will continue for some months, and those who have been invited to take part in them are teachers to whom all their colleagues will be ready and glad to listen.

VIII.

REVIEWS.

The Philosophical Basis of Evolution.—By JAMES CROLL, LL. D., F. R. S. London: Edward Stanford, 1890, pp. 198.

The late Dr. James Croll was in many respects a remarkable man, and the present little book, his last effort, is most characteristic of him. An earnest geological worker, he was also no mean mathematician and astronomer, and he was strongly tinctured with that love of metaphysics which is characteristic of so many hard-headed Scotsmen. The prevailing doctrines of evolution naturally attracted his attention, and many years ago, in his book "The Philosophy of Theism," and later in magazine articles, he endeavored to direct attention, in connection with these doctrines, to the violations of the great principle of causality—"Everything that comes to pass must have a cause"— involved in many of the discussions of those enticing and all-engrossing theories. His protests on this ground, however, though they attracted the attention of many thinking men, were necessarily, to the multitude, but as "the voice of one crying in the wilderness." The present book may be regarded as a last effort to bring back the attention of thinkers to what he considered to be fundamental principles, and possibly at this moment, when the current crude ideas are being so rudely shaken, the Scottish geologist's appeal to common sense may have some weight.

With Croll, evolution is more narrowly defined than with many writers. The evolution in which he believes is the succession of events in time whereby "a gradual transition has taken place from the simple to the complex, from the homogeneous to the heterogeneous, from indefinite to the more definite," and this under the domain of causality. Viewed in this way, rational evolutions should consist of series of ascertained sequences, as for instance those which occur in the evolution of a plant from a seed or an animal from an egg. These are matters of observation, and what science and philosophy have to do with them is to ascertain their true, efficient causes. Here he finds that there is great diversity of

opinion, and that many evolutionists regard the process as purely mechanical and physical, or the result of matter, motion, and force alone. This he holds to be a mistake, and defines the object of his treatise to be to show that it is absolutely impossible that "the process of nature can ever be accounted for without going beyond what is to be found in matter, motion, and force." He illustrates this by a reference to the great importance now attached to molecular motion in all physical questions, and by calling attention to the fact that in such molecular motions the essential question is not as to the fact of such motions, but as to the causes determining their direction. Hence the reasoner, who in explaining any evolution or development is content to limit his view to the mere forces involved, must necessarily fall short of any philosophical comprehension of the causes of the changes taking place. If, for instance, the molecules of a substance pack themselves together and form a regular crystalline form, it will not do to refer the evolution of such a form merely to attractive force; we must also consider what determines the action of such force in a manner to produce crystals of different forms in different substances, and in the same substance under different external conditions. Thus in the simplest kinds of development very complex and far-reaching questions occur, and these become complicated in an extreme degree in the development of organic forms. This great principle of determinism he thinks has been too much overlooked; and thus, as the writer of this notice has frequently maintained, the existing theories of evolution have degenerated into partial and imperfect explanations, and in many cases to a species of reasoning in a circle in which the end to be attained becomes the efficient cause of a process for its own attainment, and in which the complicated directions and determinations of energy are altogether overlooked. Nor is the idea of determination a new one, for I remember how strongly it was insisted on, before the rise of Darwinian evolution, in Dr. Chalmers's lectures on natural theology; and Croll quotes many other eminent names in its support.

A simple illustration of this fallacy is afforded by a consideration of the development of heat, light, and mechanical force from the explosion of gunpowder, and of the forces and determinations of force involved in this. The explosion we may say was caused by the application of a spark of incan-

descent matter, but to remain content with this explanation would imply a most superficial view, and even here we should have to consider the causes which determined the application of the incandescent spark, be it match or electric current, at the time and in the way in which it occurred. The cause of the explosion was in fact the chemical combination of certain substances previously existing in a state of fine mechanical mixture. Chemistry readily explains to us how this occurs, and can calculate the exact amount of the resulting force, and the precise states of combination of the several elements after the explosion. But behind all this we have the production of the carbon by vegetable life and organization; that of the sulphur perhaps by volcanic sublimation or by the aqueous decomposition of sulphates; and that of the nitre by the formation of nitric acid in nitre heaps or nitrous soil. All these must precede the mechanical mixture of the substances in our pound of gunpowder. But after all this, we have not touched the most serious question of all: what determined the mixture of all these materials in the exact proportions and conditions of aggregation necessary to produce the properties of the gunpowder. If, in short, we are ignorant of the mysteries of the powder-mill, neither the explanations, however clear, of the spark evolutionist, the chemical evolutionist, or the mechanical evolutionist can give us any real explanation of the manner in which potential energy was stored up in the villainous compound in order to give it explosive power.

But the explosion of gunpowder is itself an efficient cause, subject to determination. Our pound of powder is placed in a cannon with a ball in front of it, and the gun is so pointed and elevated as to drive the ball against the wall of a fortress which it breaches. Here the effects produced are determined among other things by the form of the gun, by the skill of the gunner, by the plans of the besieging general, by the exigencies of a war depending on the most complex political considerations. Clearly, the chemical and mechanical composition of gunpowder will not go very far to explain these determining causes, though, if Croll's views as to determinism be correct, many of the highest authorities on evolution tacitly assume that they do. They certainly do so when they take for granted that the complex determinations of molecules necessary to produce the structures and functions of plants and animals

can be explained merely by the interactions of chemical and physical forces.

He applies these considerations to life and vital force, and shows that whether we regard vital force as distinct altogether from other energies or as merely a modification of some of these, we cannot account for life and organization without taking into account the determinations of motion involved.

Applying these principles to current theories of evolution, he gives some of them the credit of recognizing the principle of determination, though in an imperfect way. Natural selection, for example, if it means anything more than a figure of speech, or blind chance, must refer to determinations by which certain structures or modifications of structure are selected and perpetuated, and others destroyed. But natural selection gives no explanation of the actual determining causes. As applied to the succession of animals and plants, it can mean nothing more than the destruction of those least suited to the conditions of their existence. It can itself produce nothing, nor can it determine the direction in which the development is to proceed. In the development of an eye, for example, it gives no explanation of what first determined the production of an organ intended to place the animal in relation to the undulations of light. It gives no good reason why these organs, when produced, are continued. It is not an efficient cause of any improvements of or additions to the organ. It can only have the effect of eliminating those animals which have, relatively to their needs, the least efficient eyes; and even in this it cannot explain what determines the path in which the developments shall proceed, or how this may be balanced or counteracted by other determinations, as for instance by swifter limbs or better teeth and claws possessed by animals less perfect in sight.

To return to our previous figure: The balls fired at the wall may in the first instance fall short of it, or pass over it, but the gunner raises or lowers the piece till he gets the exact range. Even if we take the skill of the gunner here to represent natural selection, this is only one factor in the great chain of determinations necessary to secure the result that the gun shall play upon the wall and breach it.

Our author, of course, feels that determinism means design and necessitates theism. He postulates as the necessary ultimate determining cause, an "Eternal God," without whom we

can never have a rational and complete system of nature, whatever value may be attached to secondary causes, which must result from his determination.

Some details of this question he notices very ingeniously. Natural selection, he shows, cannot dispense with design, otherwise it becomes mere chance, which can effect nothing, or is reduced to a figure of speech. That an effect necessarily proceeds from its cause is no proof that the cause was not designed to produce it. The infallible accuracy of a rifle bullet is no evidence that the rifle was not designed to produce accurate firing. Natural selection cannot produce organisms, it can only modify those already produced. In so far as it has any efficiency, this can be only as a police force restraining and suppressing offenders. The apparent waste and destruction of germs and of living beings in nature, is no evidence against theism. It is on this, indeed, that we depend for the sustenance of a varied animal life, and for the maintenance and extension of all organic life in times of great geological vicissitudes. If a field could produce no more seed than what would barely suffice for next year's sowing, what would have become of agriculture? Civilized man himself could not in that case have existed. Even savages and wild animals would be constantly diminishing their food supply, and probably the earth would be in great part a desert. Various degrees of complexity and perfection are no evidence against design, for only in this way could the vast variety of kinds of life, and their suitableness for all situations, be produced. Rudimentary organs are no evidence against design. In many cases we have no proof that they are not useful, and any theory of evolution would necessitate their existence as the preparation for farther development or the means for enabling useful purposes to be served in certain coming contingencies. It would be no evidence against design to find in a machine certain parts at present not used, but intended to come into action in certain foreseen emergencies. Nor is the modification of similar structures to serve different ends an evidence against design. We do not ourselves always secure a new end by a new or different process, and we regard any invention, applicable by modification to many different ends, as on that account all the more remarkable as an evidence of intelligent plan.

Finally, Croll ventures to apply, not without success, his principle of determinism to the vexed questions of human

free will or necessity. Into these I cannot follow him, but may remark that he shows much thought and extensive reading on the subject. The whole work is not a large one, only 198 pages of moderately large type, and well deserves the attention of thoughtful students.

J. WM. DAWSON.

McGILL COLLEGE,
MONTREAL, CANADA.

Teaching in Three Continents: Personal Notes on the Educational Systems of the World.—By W. CATTON GRASBY. London, Paris, and Melbourne: Cassell & Company, 1891, pp. xv., 344.

Dr. Harris introduces this book to American readers in a characteristic preface. The author has traveled extensively, observed intelligently, and recorded his observations with unusual accuracy. His book has no literary style and pretends to none. It is a series of notes arranged topically. Mr. Grasby say so little of French and German schools that what he does say might as well have been omitted. The chief value of the book for American teachers consists in the information it contains concerning education in Australia, and its criticisms on school work in the United States. The latter are based, almost if not entirely, on the school work as seen in the Northern states; and, indeed, in the richest and most progressive of these. To use Mr. Grasby's own description, "The total area of the states with which I deal is about equal to that of Queensland, the third in size of the Australian colonies; and the population, roughly speaking, is somewhat greater than that of the British Isles" (p. 10).

That Mr. Grasby is an intelligent critic is shown at once (p. 21) when he puts his finger upon the lack of compulsory education, and of well-trained teachers, as the two weakest spots in our national educational armor. He notes, from time to time, a number of ways in which these two great weaknesses make themselves felt.

New York City comes in for a gentle rap or two, and the following passages are commended, without prejudice, to the attention of those whom they most concern. "The city of New York must not be taken as an example of the system followed in the United States generally. It is the result of the extreme application of a method found very effective elsewhere. Some writers have fallen into the error of considering

that the same judgment of the schools of the United States may be formed from the schools of New York, as may be in the case of England from the Board schools of London. The English authorities estimate the value of a school by what they consider the results, while those of New York do so by the way in which the teachers carry out the directions of the teacher's manual. Speaking generally of America, it may be said that the machinery and methods are more valued as means of judging the work of the teacher, than are the measurable results obtained (pp. 56, 57)." "[In New York] there seemed to be so great a desire for me to see what they thought good, with a corresponding apparent disinclination to allow me to see what I wished, that I found it profitable to spend less time in the Empire City than I had intended. I came to the conclusion that there is more system and less education in New York than in any other city of the Union I had visited" (pp. 240, 241).

Mr. Grasby writes with full appreciation of the newer educational movements in this country, and his comments on the manual training, the teaching of elementary science, form study and drawing, and the kindergarten, are both discriminating and sound. The American teacher is praised for reading Herbert Spencer, Froebel, Horace Mann, Joseph Payne, Pestalozzi, Sully, and Fitch, while his English cousin is contented with "How to Gain 100 per cent. in Arithmetic," "How to Prepare for Examination," etc. (p. 174). The country is certainly to be congratulated if the movement to induce teachers to read the real literature of their profession has progressed so far as to attract the attention of the foreign visitor.

What the author says about education in Australia is very interesting, and should be read carefully. The United States is not the only new country that is endeavoring to work out its own educational salvation.

N. M. B.

A Dictionary of Classical Antiquities; Mythology, Religion, Literature, and Art.—From the German of Dr. OSCAR SEYFFERT. Revised and edited with additions by HENRY NETTLESHIP and T. E. SANDYS. New York: Macmillan & Company, 1891, pp. 706.

This is essentially a translation, and a good one, of Seyffert's *Lexikon*, which is a very useful book. Its peculiar usefulness appears to consist in combining into one convenient

and reliable book of reference the material usually sought in two or three. Under one continuous alphabetical arrangement, titles are grouped which represent the different provinces of literature, mythology, religion, art, life and manners, and political institutions; *e. g.*, Æschylus, Agamemnon, Ares, Agriculture, Amphora, Atrium, Artillery, Atimia, etc. Biography is included so far as it has connection with literature, art, or religion; thus there is an article on Julius Cæsar, but not on Pompey the Great.

The service of the English editors, apart from the translation, consists first in the addition of many illustrations chosen, on the whole, with good judgment, though still somewhat sparingly, from essentially the same repertory as that used in *Baumeister's Denkmäler.* That these pictures are scarcely ever alluded to, much less explained in the text, is characteristic of the perfunctory manner in which the editing has in general been done. Changes and additions in the text are few and slight. By far the most of these are done by Dr. Sandys, and these are chiefly in the field of art. Thus he has written entire articles under the headings *Olympieum, Torentic Art, Vases, Mosaics, Pauson, Mentor, Mys, Stephanus, Polycleitus,* and *Philo.* The additions to existing articles are mostly unimportant ones. The citation of passages from ancient authors, which have been inserted here and there, especially in the latter portion, are too fragmentary and too unevenly chosen to be more than an incumbrance to the text. Vastly better would have been a short bibliography of authorities at the end of all the important articles, such as Dr. Sandys has added to his articles on *Torentic Art, Vases, Olympieum,* and *Mosaics.* As a sample of the editors' zeal in "bringing the articles up to date," attention is called in the preface to their use of the newly discovered *Constitution of Athens* in editing certain of the articles, especially that on the *Solonian Constitution.* Turning to that article, we find this use limited to an eight-line paragraph at the end, which promulgates the Aristotelian information that Solon reduced Draco's council of 401 members (who were selected by lot) to 400, and "extended in some particulars the powers already possessed by the Areopagus." This, as well as the foot note on page 693, illustrate the superficial way in which the opportunity of "bringing up to date" has been employed. There were surely things enough to correct. To illustrate: under the headings *Chiton, Clothing, Peplus,* the investigations

of Studniczka, which make the historical relations of *Chiton* and *Peplus*, in the development of the Greek costume, perfectly clear, and which should have caused a thorough recasting of these articles, are utterly ignored. There is generally in Seyffert's book a lack of the historical treatment. The Greeks of the heroic, of the classical, and of the Roman period are all jumbled together into one mess, out of which a picture can be made only by a sort of pedagogical *Gleichmacherei*, that smacks strongly of the Prussian gymnasium. For anything this book tells us, the Greeks of all periods and all purses dwelt in a very symmetrical house, "designed by Guhl." The old cut-and-dried view of Demosthenes' political character is served up without deviation from the orthodox grammar-school standard. Demosthenes is judged by what he says of himself, and Æschines by what Demosthenes says of him.

The hoariest etymologies are given without the slightest indication of doubt. Thus, under *Amazons*, we are told the word means "breastless," though the illustration testifies against it, and the quantity of the second syllable is marked duly long. We wonder it has never occurred to any credulous etymologist to derive the word from *μᾶζα* and make it mean "johnnycakeless"; it were a far better etymology than the other, for there is no proof that the Amazons ever ate *μᾶζα*. *Seisachtheia* is explained by the etymology the ancients loved so well, "the shaking off of burdens." This is a regular "sparrow-grass" etymology. The word Leitourgia (Liturgia) is, to begin with, a false spelling; the vowel of the first syllable is Eta, but that is excusable as compared with the etymology, "service performed for the public," which merely repeats the ancient but hopeless absurdity of coupling *leito-* with *λεᾱ́ς* "people." It is time that Greek antiquarians came to recognize the general principle that it discredits rather than recommends an etymology to find it acceptable to an old Greek grammarian. The word seems to have originally meant "volunteer-service"; at least, that is an etymology of the word which can be scientifically defended.

It is not difficult, I allow, to find in any book of reference like this an abundance of points for criticism, but the points here selected are representative. It is a fault of the entire work that it does not free itself from the swaddling bands of the traditional school-lore.

BENJ. IDE WHEELER.

CORNELL UNIVERSITY.

Notes on English Literature.—By FRED. PARKER EMERY, Instructor in English in the Massachusetts Institute of Technology, Boston: Ginn & Co. 1891., pp. xiv, 155.

Whoever invents the ideal method of teaching English literature will deserve a premium. The author of these *Notes* has based his work on the principle that "literature is learned by reading it and studying it, not by reading about it and studying about it." This is undoubtedly the correct principle, but that the two are inseparable may be inferred from the fact that in the very next page the author uses the expression, "It seems much better that [the student] should thoroughly learn about the few great writers than learn a little about all." The book is, then, in the author's own words, "merely a syllabus of a series of lectures on this subject, not by any means complete, but including only the most important and noteworthy writers of each period." It is an attempt to introduce the student to literature itself, and that the best literature; a praiseworthy aim, the aim of all teachers of literature, and it is to be welcomed as a help to this end. It consists of a brief introduction, descriptive of the author's plan, and ten chapters from the Anglo-Saxon to the Victorian Age, followed by a course of representative readings and Sir John Lubbock's list of the one hundred best books. On the margin of each chapter is a chronological summary of the chief historical events of the period, and the first paragraph of each chapter relates to the history and society, or the politics and society, of the period, thus attempting to illustrate the author's principle that "history and literature should be studied side by side;" a good principle, but students should know something of English history before they begin the study of English literature. The limits of this notice will permit but a few brief remarks on certain points in the execution of the plan. Under Cynewulf we miss the *Elene* and the *Juliane*, to say nothing of other poems attributed to him. Walter Mays wrote his three chief romances in French prose, not in Latin. That Ormin's rhythm is nearly perfect might have been added. As to the so-called Sir John Mandeville's *Travels*, consult the Encyclopædia Britannica, vol. xv, and a recent article in the April Number (344) of the *Quarterly Review*. While Wyclif's Bible as a whole was first printed by Forshall & Madden, in 1850, the New Testament was printed by Lewis in 1731. Some misprints and oversights may be noted in passing, but it is

almost impossible to avoid them in any book: 1559 (p. 12), 1325 (p. 131), 1412 (p. 17); the House of Lancaster did not supersede "the Plantagenets" (p. 16); 1774 (p. 18); "Episcopal" should be "Anglican" (p. 20); Sir Thomas Wyatt the elder was the poet, and he was not "beheaded for treason," but his son met that fate—this error is found in other books on English literature; "Dionysius" should be "Dionysus" (p. 31); *The Pardoner and the Friar* is not a mystery, but one of Heywood's Interludes; *Gorboduc* is not "thoroughly uninteresting" (p. 32), *mejudice*, but this is a matter of taste; the Blackfriars was not the "first regular licensed theater," (p. 33); and some of the "post-Shakespearian" dramatists were "pre-Shakespearian." But I have space left only to note the omission of the Restoration dramatists, and of the poets, Thomson, Collins, and Gray. We cannot spare the last two, even in a brief course. Some other misprints and omissions have been noticed, but they can be easily corrected, and in the hands of an industrious teacher the book will serve well its purpose as an introduction to the study of English literature. The author has done well to include no living writer under fifty years of age: time has not yet settled the position of living writers, and posterity may reverse the judgment of contemporaries.

JAMES M. GARNETT.

UNIVERSITY OF VIRGINIA.

Principles of English Etymology: Second Series, the Foreign Element.—By the Rev. WALTER W. SKEAT, LL. D., Elrington and Bosworth Professor of Anglo-Saxon in the University of Cambridge. New York: Macmillan & Co., 1890, pp. xxxi, 505.

There are few persons qualified to deal with the subject of the principles of English Etymology as is the well-known author of the Etymological Dictionary; yet Professor Skeat claims his *Principles* to be "no more than a mere outline, perhaps an imperfect one, of the history of English from an etymological standpoint." The purpose of these two volumes, the second of which has just appeared, is perhaps best learned from the words of one of the concluding chapters (Second Series, p. 441); it is "to supplement and in some instances to correct the etymologies given in the author's larger and concise Dictionaries. The chief endeavor is to formulate some of

the phonetic laws by which changes in the forms of words have taken place, so as to enable the student to trace for himself the history of a given word with some degree of accuracy." A word in regard to the scope of the work may now be added.

The first volume of the *Principles* (1887) deals mainly with "The Native Element" in English. Under this head were comprised all the Teutonic elements in the English tongue; the Latin and Greek elements introduced into the speech during the Anglo-Saxon Period were for convenience included; the less numerous Celtic elements absorbed at various dates were added. In this new volume, "Second Series, the Foreign Element," the plan is further carried out.

The term "foreign element," as the author notes, is used necessarily as a somewhat broad designation. It is employed in the present treatment of the sources of our vocabulary to denote (1) words of French origin; (2) words derived immediately from the Latin and Greek later than the Norman Conquest; (3) words borrowed from the various Romance languages exclusive of French, viz.: the Italian, Spanish, and Portuguese; (4) words borrowed from the Aryan languages besides Latin and Greek; and (5) the miscellaneous words borrowed from non-Aryan tongues. This gives the framework of the treatment; these elements are then systematically taken up.

Under the first head, an extended discussion (seven chapters) is given of the Anglo-French element in our speech. This is the designation that the author adopts for the French introduced by the Norman Conquest, and then developed in England. Stress is rightly laid upon the importance of distinguishing this element from any of the later additions to our vocabulary; this now essential factor is regarded as a part of our language almost as necessary for practical purposes as the "native English" of Anglo-Saxon origin. The history, the main characteristics, and the pronunciation of Anglo-French are sketched; illustrative specimens of the language are presented; its further development and modification under English influences are traced; abundant examples to illustrate the history of its phonetic changes are given. These pages contain extensive and useful material; they throw out many a suggestion to the observing student. Among other points, in dealing with the question of percentages of borrowed and native words, in a writer's style (p. 15), the author lays stress on the usefulness of computing the number of words of Anglo-French

origin and of crediting the writer with these in contrast with the words he borrows from other foreign sources.

In treating the "central" or continental French borrowed after the fourteenth century down to the French of modern times, the method is parallel with the preceding. The language of Chaucer, Lydgate, Caxton, Shakespeare, and Dryden is briefly discussed in reference to importations from the French source. Stress is laid throughout on the importance of "chronology" in the history of words. Useful information, convenient for reference, is given in regard to the origin and the sources of French itself.

In accordance with the system of treatment adopted and with similar, if less extensive, detail, the classical elements of the Greek and Latin that were introduced with the revival of letters are discussed. The main phonetic principles governing the sound changes are well outlined. A like treatment of the remaining Romance languages follows. This leads the discussions to those borrowed words in English for whose etymology we are to look to the Asiatic, Sanskrit, Persian, Hebrew, and other languages. These pages recall again, of course, the Supplement of the author's Etymological Dictionary, where the distribution of words is dealt with; they afford additional illustrations of the principles of Etymology.

In the chapter (xxv) on "False Etymologies" a word of warning is given; illustrations show us how often it is necessary to unlearn etymologies that we have once carefully learned. This the author frankly and feelingly acknowledges to have been too often his own personal experience. He adds a few useful canons in regard to etymology; and he appends a chapter on vowel-gradation in the English strong verbs.

The work is a storehouse of material to which the scientific student of English may turn for illustrations and hints. Amid this abundance, it is true, we are sometimes almost apt to lose ourselves. There are points also upon which we may feel doubtful or upon which we may not perhaps agree with the author; but it is mostly where Dr. Skeat himself does not make any claim to positiveness, which he teaches us to avoid, and he often frankly wishes he were better prepared to speak with surety himself. The usefulness of this work, to which every student of English etymology will refer, is enhanced by the full Word Index for which Dr. Skeat expresses his thanks to his daughters.

COLUMBIA COLLEGE. A. V. W. JACKSON.

Outlines of a Critical Theory of Ethics.—By JOHN DEWEY, Professor of Philosophy in the University of Michigan. Ann Arbor, Mich.: The Inland Press, 1891, pp. 253.

A remark in the preface rather implies that Prof. Dewey expects his work to be of service as a text-book for teachers. But there is nothing in the volume to support such a hope. As is usual of late years with text-books, this one is of poor paper, poor print, and poor construction. One who hoped to find it at least the equal, and perhaps the superior, of the author's Psychology, and his volume on Leibnitz, will be greatly disappointed. It has either been very hastily produced, or it is merely the expansion of the author's dictations to his classes. But hastily or unhastily produced, there is nothing sufficiently systematic about it for use as a general text-book. It is thrown together in too promiscuous a form and without adequate analysis of the various problems which the student has to solve. Men's theories are taken up and considered in a fragmentary way that may do very well for dictations to a class, where they are discussed more fully in their details. But it would take a trained teacher, already acquainted with those theories, to make anything out of the author's references and quotations. In many cases an entirely false impression of a man's motive, method, and theory is left by this picking out of a phrase or a passage without its proper setting and connections with the fundamental principle of which it is a development. For example, on p. 90, Kant's "formal law" is discussed briefly and somewhat depreciated by accepting the validity of Mill's criticism against it. But no pains are taken to see or to state under what limitations Kant himself assigned it any value. Here as elsewhere the student who has not already familiarized himself with an author, will either fail to understand him rightly, or will carry away nothing but the feeling that an objection has been produced against him. For a text-book, too much time and space are taken up with reference to others' views and criticisms of them. I am rather of the opinion that such a method is not at all adapted to the writing of a text-book. Prof. Dewey has chosen it, as implied in the preface, in order to avoid dogmatism. But this fault is not a necessary characteristic of books which are not critical. If a man were simply to "lay down the moral law," in an assertory manner for the student to accept, *nolens volens*, he might be charged with dogmatism. But there is an easy way to avoid this unenviable repute, and it is to analyze the problem, stat-

ing the bearings of the various elements upon general theoretical tendencies. There is nothing to prevent being as unsectarian in this matter as mere description is in the sciences. Analysis in psychology and ethics may be what the statement of facts is elsewhere, and the individual could be left to draw his own conclusions, if we are concerned not to hamper the freedom of his thinking. But quotation and criticism are not the only means to this end, necessary as they may be for the proper treatment of a theory. The student requires a more comprehensive method.

I have criticised Prof. Dewey's book purely as a pedagogical instrument because of his expectation that it can be used as a text-book. Of its character as a contribution to the growing amount of ethical literature, I should have something much better to say. Indeed, in this respect, it should be spoken well of.

J. H. HYSLOP.

COLUMBIA COLLEGE.

Elementary Lessons in Heat, Light, and Sound.—By D. E. JONES, B. Sc. Professor of Physics in the University College of Wales, Aberystwyth. London and New York: Macmillan & Co., 1891, pp. x, 279.

The purpose of this little book is, as the author says in his preface, to introduce beginners to the study of physics by the experimental method. The author recognizes the fact, with which most teachers of physics are familiar, that until a certain amount of information respecting the properties of matter, and the phenomena resulting from the manifestations of energy in different forms, has been acquired by actual experience, the generalizations which are usually taught in physics can have no definite meaning to the pupil; and he also emphasizes the importance of training to the habit of observation, and of learning things at first hand.

To one who is a thorough believer in the experimental method of beginning the study of physics, however, the book cannot but be disappointing. While it is well arranged, clearly written, and contains many excellent problems for testing the ability of the pupil to apply the principles which he is supposed to have learned, and while it possesses that rarest of all virtues in a school text-book, scientific accuracy, it is weak in experimental physics.

The essential feature of true experimental science teaching

is that it shall be inductive; *i. e.*, the generalization must follow and grow out of the individual notions upon which it is based. An experiment performed merely for the purpose of illustrating a principle already understood, or for verifying the statement of an author, will awaken little interest and less thought on the part of the pupil, unless he doubts the accuracy of the author's statement. In the book under consideration, the logical method of development is used quite as often as the inductive method, and, in every case, the necessity for thoughtful observation on the part of the pupil is reduced to a minimum by telling him how the experiment will terminate, and what it will prove.

The experiments are also, in the main, the stock experiments of the text-books, and are, consequently, of little aid to teachers who are searching for new ideas as to methods of presenting the subject to their classes.

FERNANDO SANFORD.

STANFORD UNIVERSITY.

Elements of Civil Government.—A text-book for use in public schools, high schools, and normal schools, and a manual of reference for teachers.—By ALEXANDER L. PETERMAN. New York: American Book Company, 1891, pp. 224.

The title page informs us that the author of this little book, Mr. Alexander L. Peterman, was formerly principal and professor of civil government in the normal school of the Kentucky State College, and member of the Kentucky State Senate. Both as teacher, therefore, and as legislator, Mr. Peterman has had an experience that must have been of great value in the preparation of a text-book on Civics. He understands his subject thoroughly, and he knows how to present it clearly, cogently, and briefly. Lucidity and brevity are the characteristics of his style. His language may be easily understood by any child who can read intelligently in a Fourth Reader, while the book, so far as length is concerned, will be mastered without difficulty by the average pupil in a term of five months. After glancing over many discursive books on government, it is a relief to come upon an author who can compress so much into so short a space.

Not only is the style good, but the matter, from a pedagogical point of view, is admirably arranged. Beginning with the government of the family, the author treats, in turn, of

the governments of the school and school district, the township, the county, municipal corporations, the State, and the United States. The concept of government is evolved from the familiar facts of the family and the school, and hence the pupil will have little difficulty in comprehending the remote facts and theories, when he reaches them, of state and national government. The book concludes with chapters, somewhat more abstract than those which precede, on government, justice, law and liberty, suffrage and elections, the Australian ballot system, parties and party machinery, legislation, and revenue and taxation. As a rule, no concept is introduced until the material out of which it is to be built has been supplied. The only exceptions I have noted are that the terms, *ex post facto law* and *bill of attainder*, are used on page 74, but are not explained until page 118; and that the term *organized Territory* is used on page 65, while the explanation comes on page 94.

Each chapter is followed by a series of "suggestive questions," not questions directly on the text, but questions that require the student to make practical application of what he has read, and that thus exercise his reflective powers as well as his memory. Had this idea been carried still further—were the student required to find illustrations, both in the past history of our country and in current events, of the theories laid down—the questions would have been still more valuable than they are.

Of adverse criticism there is not much to be made. The book might have been enriched by the introduction of more historical matter, but this would have increased its bulk beyond the limitations imposed by its use. The author is sometimes over-bold in his assertions, as when he tells us: "Experience has shown that it is dangerous to the liberties of the people to permit either of the three departments of government to trespass upon the functions of the others." On the contrary, experience in other countries has shown that a closer union of the executive and legislative powers, as when the members of the cabinet hold places in the Legislature, may sometimes be attended with most positive advantages and become a guarantee, as it certainly is in England, of the liberties of the people. Again, he says: "Our system of government is different from those of all other countries, because part of the political power is vested in the State, and part in the nation;

that is in the United States." He had only to look across our northern border to discover that this statement needs to be strictly limited.

Upon the whole, however, the book is worthy of high commendation.

W. H. M.

Object Lessons From Nature: A First Book of Science.—By L. C. Miall, Professor of Biology in the Yorkshire College, Leeds. London and New York: Cassell & Co., 1890, pp. 302.

The plan of this book is briefly stated by the author as follows: "Simple explanations about animals and plants, with very familiar examples, described in some detail, come first. These early lessons are meant to give a small stock of information, to teach the habit of careful examination of all the details of any natural object, and to prompt questions. Then some chemical and physical facts are introduced, and experiment is brought in. Upon this foundation some simple lessons on clouds, rain, rivers, and on the food of plants are based. . . . . The main purpose of the book is to explain the simplest natural phenomena to children who are incapable of continuous and methodical thought. To the child these ought to be no separate sciences at all; and the scientific explanations should be simply ways of throwing light upon certain natural facts about which the child has been led to feel some curiosity."

It may be added that three important conditions are indispensable to success in object-lessons: suitable objects, a proper use of them, and awakened interest on the part of the pupil. The pupil must become the chief actor in seeing and in doing, in order to be a successful learner. The pupil must not only see and do, but also tell what is found or discovered. The teacher should encourage the pupil; lead him to correct mistakes made in seeing and in doing; and also explain what is seen or found out, so far as may be appropriate to the lesson.

Teachers understand the difficulties in the way of presenting natural objects for observation in the schoolroom. They realize, further, that many of the facts appropriate for object lessons relative to the structure and habits of animals, of plants, and of the common phenomena of nature, are not readily accessible to them. In view of these facts, the practi-

cal value of a book on object-lessons from nature may be judged by the character and appropriateness of the facts which it supplies for such lessons. An examination of the book under consideration shows that it contains many interesting facts which are overlooked by the ordinary observer; these are simply stated, and many of them plainly illustrated.

It may be stated that some of the methods suggested by the author for the use of this book are not in harmony with good object-teaching; but the teacher of tact will find many ways of making it a valuable aid in awakening the interest of his pupils in a careful study of nature.

N. A. CALKINS.

ASSISTANT SUPERINTENDENT OF SCHOOLS,
NEW YORK.

VII.

EDUCATION IN FOREIGN PERIODICALS.

The English Free Education Act.

We are glad to be able to lay before our readers the full text of the English Free Education Act, as it received the Royal Assent.—[ED. EDUCATIONAL REVIEW.]

Elementary Education Act, 1891.

(54 AND 55 VICT. C. 56.)

ARRANGEMENT OF SECTIONS.

1. Fee-grant and conditions thereof.
2. Limit of fees in schools receiving fee-grant.
3. Prohibition of charges in certain schools receiving fee-grant.
4. Power to modify limit in certain cases.
5. Provision for free schools, accommodation, etc.
6. Power to contribute from fee-grant to common school fund.
7. Grouping of schools.
8. Explanation of 33 and 34 Vict. c. 75, s. 17.
9. Provision for equality of treatment.
10. Meaning of "school year" and "average attendance."
11. Repeal.
12. Commencement of Act.
13. Short title and construction.

Schedule.

An Act to make further provision for assisting Education in Public Elementary Schools in England and Wales.

Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

Fee-grant and Conditions thereof.

1. (1) After the commencement of this Act, there shall be paid, out of moneys provided by Parliament, and at such

times and in such manner as may be determined by regulations of the Education Department, a grant (in this Act called a fee-grant) in aid of the cost of elementary education in England and Wales at the rate of 10*s.* a year for each child of the number of children over three and under fifteen years of age in average attendance at any public elementary school in England and Wales (not being an evening school) the managers of which are willing to receive the same and in which the Education Department are satisfied that the regulations as to fees are in accordance with the conditions in this Act.

(2) If in any case there is a failure to comply with any of the conditions in this Act, and the Education Department are satisfied that there was a reasonable excuse for the failure, the Department may pay the fee-grant, but in that case shall, if the amount received from fees has exceeded the amount allowed by this Act, make a deduction from the fee-grant equal to that excess.

(3) For the purposes of section 19 of the Elementary Education Act, 1876, the fee-grant paid or payable to a school shall be reckoned as school-pence to be met by the grant payable by the Education Department.

Limit of Fees in Schools receiving Fee-grant.

2. (1) In any school receiving the fee-grant:

(*a*) Where the average rate of fees received during school year ended last before January 1, 1891, was not in excess of 10*s.* a year for each child of the number of children in average attendance at the school: or,

(*b*) For which an annual Parliamentary grant has not fallen due before the said January 1:

no fee shall, except as by this Act provided, be charged for children over three and under fifteen years of age.

(2) In any school receiving the fee-grant where the said average rate was so in excess, the fees to be charged for children over three and under fifteen years of age shall not, except as by this Act provided, be such as to make the average rate of fees for all such children exceed for any school year the amount of the said excess.

Prohibition of Charges in certain Schools receiving Fee-Grant.

3. In any school receiving the fee-grant where the average rate charged and received in respect of fee and books, and for

other purposes, during the school year ended last before January 1, 1891, was not in excess of 10*s.* a year for each child of the number of children in average attendance at the school, no charge of any kind shall be made for any child over three and under fifteen years of age.

Power to Modify Limit in Certain Cases.

4. (1) Notwithstanding anything hereinbefore contained the Education Department, if they are satisfied that sufficient public school accommodation, without payment of fees, has been provided for a school district, and that the charge of school fees or the increase of school fees for children over three and under fifteen years of age in any particular school receiving the fee-grant is required owing to a change of population in the district, or will be for the educational benefit of the district, or any part of the district, may from time to time approve such charge or increase of fees in that school, provided that the ordinary fee for such children shall not exceed 6*d.* a week.

(2) The Education Department shall report annually to Parliament all cases in which they have sanctioned or refused the imposition or augmentation of fees under this section, with a statement of the amount of fee permitted.

(3) The Education Department may, if they think fit, make it an express condition of such approval that the amount received for any school year from the fees so charged or increased, or a specified portion of that amount, shall be taken in reduction of the fee-grant which would otherwise have been payable for that school year, and in that case the fee-grant shall be reduced accordingly.

Provision for Free Schools Accommodation, etc.

5. If at any time after the expiration of one year from the commencement of this Act it is represented to the Education Department that there is in any school district, or any part of a school district, an insufficient amount of public school accommodation without payment of fees for children over three and under fifteen years of age, for whom such accommodation is desired, and the Education Department are satisfied after inquiry that such is the case, the Department shall direct the deficiency to be supplied in the manner provided by sections 9 and 10 of the Elementary Education Act, 1870, and every other

section enabling them in that behalf, with respect to the supply of public school accommodation, and the expression "public school accommodation" in that Act shall include public school accommodation without payment of fees, provided that whenever and so long as any deficiency in such last-mentioned public school accommodation in any district is in course of being supplied with due despatch, no requisition or order shall be issued in that behalf by the Education Department.

Power to Contribute from Fee-grant to Common School Fund.

6. The managers of two or more public elementary schools in the same or neighbouring school districts, not being schools provided by a School Board, may pay the fee-grant, or part thereof, received by each school into a common fund for distribution, as may be arranged by them, between or among such schools.

Provided that the fee-grant received by each school in the first instance shall alone count as income of such school for the purposes of this Act and of section 19 of the Elementary Education Act, 1876, and a contribution to a school from any such common fund shall not be reckoned as income of such school from other sources within the said section 19.

Grouping Schools.

7. (1) Where the managers of two or more public elementary schools in the same or neighbouring school districts agree to associate, and elect a committee for the schools, any surplus income on the accounts for the school year of any of the associated schools may be paid into a common fund, out of which contributions may be made to any of the other associated schools, but the contributions received by any such school shall not be counted as income from other sources for the purpose of section 19 of the Elementary Education Act, 1876, so that no addition to the public charge may result from this section taken in conjunction with the said section 19. Provided that no Board school shall under this section be associated with any public elementary school other than a Board school.

Explanation of 33 and 34 Vict. c. 75, s. 17.

8. Nothing in section 17 of the Elementary Education Act, 1870, shall prevent a School Board from admitting scholars to any school provided by the Board without requiring any fee.

Provision for Equality of Treatment (see 33 and 34 Vict. c. 75, s. 97).

9. Nothing in this Act shall give any preference or advantage to any school on the ground that it is or is not provided by a School Board.

Meaning of "School Year," and "Average Attendance."

10. In this Act the expression "school year" shall mean a year or other period for which an annual Parliamentary grant is for the time being paid or payable under the minutes of the Education Department, and the expression "average attendance" shall, for the purposes of the fee-grant, mean average attendance calculated in accordance with the minutes in force at the commencement of this Act.

Repeal.

11. The Acts mentioned in the schedule to this Act are repealed to the extent mentioned in the third column of that schedule.

Commencement of Act.

12. This Act shall come into operation on September 1, 1891.

Short Title and Construction.

13. (1) This Act may be cited as the Elementary Education Act, 1891, and shall be construed as one with the Elementary Education Acts, 1870 to 1890.

(2) The Elementary Education Acts, 1870 to 1890, and this Act may be cited collectively as the Elementary Education Acts, 1870 to 1891.

SCHEDULE.

Enactments repealed.

Session and Chapter	Short Title	Extent of Repeal
33 & 34 Vict. c. 75.	The Elementary Education Act, 1870	Section 26.
39 & 40 Vict. c. 79.	The Elementary Education Act, 1876	Section 18.

Education in Ancient Greece.

L. Chauvin in "L'Education Nationale."

It is recognized that the educational practice of a people is closely related to its religious and political beliefs. It is not difficult to establish this in the case of the Greeks. The framework of the Greek religion was idealized humanity. The gods of Olympus had been mortal heroes. They had gained immortality by their virtues and by the services rendered to their compatriots. Their souls, released from human pains, dwelt forever in beautiful bodies and gave to them a majestic serenity. This divine character, which the Greek artists sought to impress upon their statuary, their educators sought to realize in the child. It is in this sense that the poet Juvenal intended his celebrated saying, *mens sana in corpore sano.* The means that they adopted were gymnastic and music.

Gymnastic gave to the body strength and suppleness, while music (which included, besides music proper, literature and the arts) cultivated the soul and gave to it purity and elevation. The dance, which had something in common both with gymnastic and with music, completed the work of education by establishing a harmony between the two sides of man's nature.

The political organization of the Greeks suggested the remaining features of their educational practice. The small states which made up Greece were really aristocratic republics, although some of them had kings. At the base of the social pyramid was a great multitude of slaves, possessing no political rights. At the apex were the freemen, comparatively few in number, having full political rights and all the political power. Between these two classes were the freedmen and foreign residents, who enjoyed certain immunities and could acquire property, but who had no part in the government. The slaves were the laborers, artisans, and domestic servants. Their education was limited to apprenticeship to a trade or calling. The children of the freemen were first of all trained to become soldiers. Later they were invested with civil and judicial powers. The safety of the state demanded that its citizens should be capable of governing the state and able to defend it against the attacks of foreign and domestic foes. Therefore the education of the future citizen was a very important matter, one to be regulated carefully by law. The child belonged to the state as well as to his parents. Most

frequently the state claimed precedence over the parents. This characteristic was common to all the Greeks, but in different degrees. At Athens, state control was moderately exercised; at Sparta, on the other hand, the family was suppressed for the public good.

The education of the Spartans, as directed by the laws of Lycurgus, produced a courageous and martial race. It inspired a stern patriotism, but was not humane in our acceptation of that term. It overlooked literary and artistic culture. It sacrificed the most tender and delicate human sentiments. Its socialism left out of account that important institution, the family. It suppressed liberty, and by preventing the growth of individuality made progress difficult, if not impossible. The education of the Athenians was much superior. Solon had wished the state to play an important rôle, but the family retained its influence and its natural rights. The entire man was developed by a system which was at once ideal and utilitarian.

The Relation between Psychology and Pedagogy.

E. W. SCRIPTURE IN "MIND."

The last relation we have to consider is that between Psychology and Pedagogy. The didactic sciences are of two kinds: the sciences of the general principles or ends to be obtained and the sciences of the means to attain these ends. The general purposes can be either dogmatically or scientifically determined. "Love thy neighbor as thyself," "Know thyself," are dogmatic enunciations of general principles; "Nothing is to be believed that is not proved," can also be dogmatic; but the decision that the power of judgment is a more important factor than memory in an individual is a statement which has worth only upon scientific foundation. Have the dogmatic principles any worth as such? That is an open question. There exist, however, sciences which, with proper methods, establish the general objects to be sought for; these are the general didactic sciences. Among these is General Pedagogy, which determines the ends to be sought for in education.

When the general ends have been dogmatically set up or scientifically obtained, then the special didactic sciences teach the means of attaining them. The special sciences furnish the

data; the special didactic sciences teach how to use these data in order to reach certain ends. Anatomy and physiology, for example, furnish data concerning the physical organism; a certain condition of the body is regarded as the proper one; it is the duty of hygiene, on the foundation of physiology, to teach how to maintain this condition. Likewise, certain conditions of mental life and certain traits of character are determined as desirable and proper: how to obtain and maintain these conditions, and how to develop these traits, are problems of Special Pedagogy working on the basis of psychology.

For psychology, the ambition of Napoleon is as interesting as the patriotism of Washington; the childish thoughts of primitive tribes are even more carefully cherished than the clearest reasonings of a philosopher; they are all material for investigation. The general science of pedagogy, or some rule of life, determines that clear reasoning is better than childish reasoning; that although to a certain degree ambition is to be desired, yet patriotism is more important. Thereupon the science of special pedagogy teaches how the desirable qualities are to be developed and the undesirable ones suppressed. Psychology furnishes the foundation of fact; the science of general pedagogy judges which of these facts are desirable, in much the same way as epistemology judges which are true; the practical duty of bringing forward or repressing these facts is the duty of special pedagogy.

Unethical Education.

FROM THE LONDON "JOURNAL OF EDUCATION."

A fragment found among the papers of the late Rev. R. H. Quick.

Time was when the mind of the nation was deeply stirred by questions about religion, and each party urged its favorite "improvement,"

> As if religion were intended,
> For nothing else but to be mended.

In this respect religion has now to some extent been succeeded by education. The war of parties now rages round every kind of education. No one thinks that things are right as they are, and each party urges some special amendment.

In our own time a Conservative Government has carried

through a great revolution, and handed over the supreme control of our government to the working classes. The present writer, who cannot range himself with any political party, owns to having witnessed that revolution with alarm, but at the same time not without hope. All men were agreed that some great change was necessary, and this change was perhaps the only one possible. "The classes" had no doubt done many things well; indeed, the old oligarchy, before the first Reform Act of 1831, had made England the leading nation in Europe. But in those days little was expected from legislation. The common belief was expressed by the couplet:

> Few are the ills the human race endure
> That kings and governments can cause or cure.

The notion did not outlive the eighteenth century. The condition, the enlightenment, the happiness of every individual depends in a great measure on his environment; and his environment depends in a great measure on legislation. It may depend on legislation whether a class of persons spend their lives in the slums of Whitechapel and Bethnal Green or on the sheep walks of Australia. This, of course, is an extreme instance, but it is now clearly seen that the lives of all persons, especially of the great majority, viz., the poor, may be immensely affected by legislation. The need of the time, then, has become wise legislation.

How are we to get wise legislation? By putting power into the hands of a despot? or of "the classes"? or of "the masses"? Two things are needed in the legislative power: first, insight; second, unselfishness. These qualifications *may* be united in the despot, but in him they are hardly enough. He must also have almost superhuman energy, and also a gift for selecting right agents. There is besides another difficulty. How can a succession of wise despots be secured? A Marcus Aurelius may be followed by a Commodus. The classes have many advantages for discharging the duties of legislators. In early life they may obtain the best instruction, and they have leisure to profit by it. Individuals are found who benefit by these advantages. A man like the first Sir Robert Peel will live laborious days and train himself for the task of legislation. But the classes, as a body, fail from love of pleasure, and from a selfish desire to keep their own privileges. The questions that must be dealt with in the

immediate future are questions affecting the condition of the masses, and it is in this kind of legislation that the classes are weak. In a dilettante way the classes speculate as to where the shoe pinches, but it is only the masses who know. So our latest revolution has given us one great advantage in dealing with such questions. We now have an electoral body which knows the wants of the people.

But, though the masses know the evils that affect them, they are not qualified to find the cure. The problems of modern life are very complicated, and there seems little chance of their being worked out except by experts. Such experts cannot be produced without time for study, so they will belong, not to the masses, but to the classes. And where the masses are in power it is not the man who best understands his subject who is listened to, but the man who speaks oftenest and with the loudest voice.